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Orthopedic Supplement
Vol. 8, No. 1, December, 1952

Manipulation of the Low Back under General Anesthesia

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The procedure of manipulation of the low back under general anesthesia has been used by a number of orthopedic surgeons of both the major schools of medicine for a number of years, and it has been used for a number of different conditions. As a basis for consideration of this procedure and its place in orthopedic practice, we have reviewed a series of 100 low-back manipulations under general anesthesia on 87 different patients. This is a consecutive series of cases so treated between January 1, 1950, and October 1, 1952.

The aims of manipulation of the low back under general anesthesia are to accomplish mobilization of the affected area, to stretch the muscles and fascia in the affected area, and to normalize osteopathic lesion pathology in the area. Fundamentally, of course, we want to relieve the patient's low-back pain and to return him to normal activity. We feel that in selected cases these aims can be accomplished much more rapidly and with much more ease by this procedure than by the usual office manipulative management. While there are many cases of low-back pain which require bracing or some other type of support, we feel that in the majority of cases it is highly desirable to obtain a thorough mobilization of the lumbar spine and the sacroiliac areas prior to bracing or application of a support.

It is our opinion that manipulation of the low back under general anesthesia has a definite place in the osteopathic armamentarium, since with it, as with all osteopathic management, the ultimate aim is the normalization of structure and function. By using anesthesia we feel that much more can be accomplished in a short period because of the absence of pain and protective muscle spasm. Since both pain and muscle spasm are nature's protective measures, we must be careful we do not damage tissues when they are inactive.

In making this survey we have noted that our recent results are much better than our early results, indicating better selection of cases. We note also that we are making a wider application of the procedure than originally.

The method was first used on those cases which were not responding or were responding very slowly to the usual manipulative management. While these cases are classified by numerous terms among various osteopathic physicians and surgeons we have tried to narrow our classification down to a few terms which are accepted standard nomenclaturé so that the diagnoses will be in line with standard hospital procedure. We commonly hear these cases termed as chronic lumbago, chronic osteopathic lesion pathology, sacroiliac strain, structural imbalance, et cetera. We find that we are able to class most of these cases as having either a rheumatoid myofibrositis, stiffness of the joints of the lumbar spine and/or the sacroiliac joints.

We have tried the procedure on several cases of herniated intervertebral disk syndrome approximately half of which were proved by myelography and later by surgery. More recently the procedure has been used in the management of acute osteopathic lesion pathology, and acute myositis, especially of the psoas muscles. We now feel that in certain cases manipulation under anesthesia is the method of choice in the management of many acute low-back problems.

In considering the selection of cases, it must be emphasized that all cases are first given the benefit of a good history and physical examination with a thorough orthopedic examination, following an outline modified from that first used by H. C. Clybourne. (See page 240.)

Naturally the history of the case will have a definite bearing on the type of management we select as well as on the diagnosis. We also want to know about any other chief complaints the patient may have aside from the back, particularly foci of infection, tumors, et cetera. It is important to rule out any condition of the spine which would contraindicate manipulation. It is also important to know just what kind of structural problem is present in the low back.

Therefore all cases are x-rayed, with oblique views being obtained if leg pain is present. Occasionally in acute cases the standing anteroposterior pelvic film may be deferred until such time as the patient is able to stand without difficulty. However, such a film is essential for final evaluation of the case. After examination and x-rays, results which might be expected from manipulation under anesthesia are evaluated on the basis of previous experience. We also consider what results might be expected from other procedures. In many cases the decision is deferred until laboratory tests are completed or until a trial of some other form of therapy has been made.

It is difficult to state specifically how these cases are selected. Most cases of rheumatoid myofibrositis will respond well to the procedure, providing foci of infection are cleared up first and that there are no gross arthritic changes in the spine. Herniated intervertebral disk cases of long standing do not respond well; good results may be obtained in approximately 50 per cent of recent cases. However, in no case with positive myelographic findings, have we obtained any better result than temporary relief.

Cases with arthritic changes must of course be handled with care, and each case must be considered individually. We have used manipulation in the presence of marked arthritis, but only with the most careful choice of technic. We want to emphasize that we have not hesitated to use the procedure in the presence of spinal fusion, postoperatively following laminectomy, and in the presence of moderate osteoporosis. It must be pointed out that in these cases much care is exercised to make sure that the technic and the amount of force used take into consideration the pathology present.

Acute low-back cases are treated under anesthesia when we feel that it is more convenient to handle the patient this way or when there is an economic factor making early return to work essential. Adequate selection of cases comes only with experience in the use of the procedure.

CASE RECORD

Patient.....History No. ..... Age.....
Address.....Referred by.....
Date.....Occupation.....
Complaint:
Duration:
Onset:
Injury:
Aggravated by:
Relieved by:
When bothers most:
Previous treatment:
Examination:
Impression:
Recommendations:

ORTHOPEDIC EXAMINATION OF THE BACK

Standing:
Head:
Shoulders:
Torso:
Iliac crests:
Dorsal curve:
Lumbar curve:
Buttocks:
Legs:
Feet:
Forward bending:
Backward bending:
Side bending to right:
Side bending to left:
Torsion to right:
Torsion to left:

Supine:	Right	Left
Length of legs:		
Anterior superior spine:		
Umbilicus to internal malleolus:		
Abduction of legs:		
Torsion of legs:		
Straight leg raising:		
Bragard sign:		
Lasègue sign:		
Bent leg with torsion:		
Fabere-Patrick test:		
Gaenslen test:		
Sacroiliac motion:		
Compression ilia:		
Expansion ilia:		
Pressure on pubes:		
Other:		

Reflexes:	Right	Left
Abdominal:		
Cremasteric:		
Patellar:		
Ankle clonus:		
Babinski:		
Achilles:		
Triceps:		

Sensation:
Light touch:
Pain:
Temperature:
Prone:
Ely:
Sacroiliac motion:
Tenderness to palpation:
Tenderness to percussion:
Coccyx:
Sitting:
Dorsal motion:
Lumbar motion:
Cervical motion:

Feet:	Right	Left
Circumference of legs:		
Ober test:		
Other:		
X-rays:		

We will briefly outline the care of the patient undergoing this therapy, which we feel is necessarily a hospital procedure and should not be attempted in the office. After the patient has been hospitalized, the routine laboratory examinations are made. In addition we generally obtain a sedimentation rate, a Foshay index, an agglutination test, and blood sugar and nonprotein nitrogen determination. The laboratory work needed will of course vary with individual cases. It has been of special interest to us that many patients with low-back disorders have brucellosis in either an acute or chronic form. We feel that the most accurate index of this condition is the Foshay index, a modification of the opsonocytophagic index. We have not hesitated to apply manipulation under anesthesia in these patients, but have used in addition vaccine combined with other forms recently recommended for treatment of brucellosis.

The night before the manipulation is to be performed the patient is given an enema and generally a mild sedation at bedtime. Approximately 1 hour prior to the manipulation preoperative sedation of the type given for any anesthesia is administered.

Most of our cases are handled in the operating room as a matter of convenience for the nursing and anesthesia staffs. Any room with a sturdy operating or treating table could be used. After the patient has been anesthetized we mobilize the lumbar spine and the sacroiliac joints by the usual criss-cross technic. We especially avoid pressure on the shoulder. In many cases a rocking type of technic in the sacroiliac area is used next if we do not feel that mobilization has been adequate. This technic is employed next on the opposite side. Then, with the patient supine, the legs are brought up with the knees straight so as to stretch the ham string muscles. The sacroiliac and hip joints are then mobilized by a circumduction technic. We have found that this order of technics saves some time since greater relaxation is required for the technics with the patient on his side. The technics applied with the patient supine can then be carried out with no further anesthesia. The anesthetic used is generally Penthothal sodium. Occasionally curare is added by the anesthetist in cases in which much muscle spasm is anticipated.

Following manipulation the patient is returned to his room and placed upon a firm bed. Supplemental therapy varies greatly according to the case, and we definitely follow no routine. In some cases we use bilateral Buck's extension, although we feel that this is not necessary in the majority. In some cases we use early ambulation, while in others we keep the patient in bed for 6 or 7 days. Daily osteopathic manipulative treatments are used routinely. We have not placed much faith in diathermy and have tended to use other forms of heat, although of late we are using heat applications less and less.

Most of these patients require moderate sedation in the form of narcotics for the first 24 hours followed by analgesics for from 48 to 72 hours. Muscle relaxants have been used with only moderate success. We have been more pleased with Phyatromine than with any of the others. In cases showing a rather marked fibrosis we believe that vitamin E, 200 mg. daily, is useful. In cases involving the sciatic nerve, we feel that pyridoxine is of definite value. Other medications are used as indicated by the patient's general condition.

ANALYSIS OF DIAGNOSES AND RESULTS OF MANIPULATION UNDER ANESTHESIA IN 100 CONSECUTIVE CASES

Case	Date	Diagnosis: Disk Syndrome	Myofibrositis	Stiffness (Postoperative)	Acute Lesion	Psoasitis	Arthritis	Spondylolisthesis	Preoperative	Results: Excellent	Good	Fair	Poor
	1950												
1	1/26		x								x		
2	1/27		x								x		
3	3/17			x							x		
4	4/6		x	x								x	
5	4/10		x							x			
6	4/12		x				x			x			
7	4/12			x									x
8	4/13		x	x								x	
9	4/15		x							x			
10	4/24			x						x			
11	4/24			x			x					x	
12	4/29			x	x								
13	5/3	x									x		
14	5/3	x	x	x								x	
15	6/2		x									x	
16	6/9		x									x	
17	6/24		x									x	
18	7/1		x									x	
19	7/8		x									x	
20	7/15		x									x	
21	8/1		x									x	
22	8/2		x								x		
23	8/8		x										
24	8/8		x	x			x						
25	8/8		x								x		
26	8/29		x										x
27	9/15			x	x						x		
28	10/25		x									x	
29	11/10	x							x				x
30	11/27						x						x
31	12/9		x									x	
	1951												
32	1/15		x	x							x		
33	1/16		x								x		
34	2/24			x	x		x				x		
35	2/28	x									x		
36	4/7			x						x			
37	4/26		x							x			
38	4/16			x						x			
39	5/16		x							x			
40	5/17			x						x			
41	5/18		x							x			
42	6/1		x							x			
43	6/5	x							x		x		
44	6/7		x							x			
45	7/5		x							x			
46	7/10			x						x			
47	7/10		x								x		
48	7/26			x							x		
49	9/4			x			x	x		x			
50	10/5		x	x						x			
51	10/15	x	x								x		
52	11/13		x	x								x	
53	12/6			x							x		
54	12/13	x		x							x		
	1952												
55	1/11		x	x							x		
56	1/16	x										x	
57	1/25		x	x							x		
58	1/29			x	x	x					x		
59	2/12		x	x							x		
60	2/12		x								x		
61	2/29			x							x		
62	3/4	x	x										x
63	3/26		x		x						x		
64	3/28			x	x						x		
65	4/2		x	x							x		
66	4/5		x								x		
67	4/11		x	x							x		
68	4/15			x		x						x	
69	4/15			x								x	
70	5/19		x	x							x		
71	5/20	x	x		x						x		
72	5/23	x										x	
73	6/2		x			x						x	
74	6/5		x	x							x		
75	6/6	x											x
76	6/14			x	x						x		
77	6/20	x	x									x	
78	6/25			x							x		
79	6/27			x							x		
80	6/27		x								x		
81	6/28		x	x							x		
82	7/2					x							x
83	7/5		x	x		x						x	
84	7/9			x								x	
85	7/11		x	x		x					x		
86	7/15	x										x	
87	7/18		x										x
88	7/23		x	x								x	
89	8/3	x									x		
90	8/5			x							x		
91	8/6	x										x	
92	8/8		x	x							x		
93	8/13	x		x	x	x							x
94	8/14				x	x					x		
95	8/21					x					x		
96	9/6		x	x		x					x		
97	9/10	x									x		
98	9/16	x	x									x	
99	9/24	x		x							x		
100	9/27	x		x									x

The majority of our patients leave the hospital by the fifth to seventh day if they have had good results. We want to emphasize that management of the chronic low-back case is not limited to manipulation under anesthesia. We frequently combine this method with others, such as x-ray therapy, braces, and exercises.

We present the following statistics on our series of cases. If 6 manipulations which were done experimentally in a neurologic case are subtracted, 94 manipulations remain from which adequate statistics can be derived. Seven of the 87 patients required a second manipulation before obtaining good or excellent results, making the total of 94 manipulations. In these 94 cases the following diagnoses were made: Herniated intervertebral disk syndrome, 22 cases; myofibrositis, 52 cases; stiffness of the lumbar spine or sacroiliac joints, 48 cases; acute osteopathic lesion pathology, 7 cases; acute psoasitis, 12 cases; arthritic spinal changes, 5 cases; spondylolisthesis, 1 case; and postlaminectomy, 3 cases. A number of cases had more than one condition listed in the diagnosis. Eight patients underwent manipulation prior to laminectomy. While the immediate effect of the manipulation was only fair or poor in these cases, we feel that in the long run the manipulation was worth while in that it appeared to promote quicker recovery for the patient following the laminectomy.

In rating our results we have tried to be conservative and, insofar as possible, we have followed patients for several months. Some, of course, are still under care. Our method of rating is based chiefly upon how the patient feels concerning the procedure. We have rated 28 patients as having excellent results, 32 as having good results, 20 as having fair results, and 10 as having poor results. This gives a percentage of somewhat over 60 per cent good and excellent results for this procedure. We feel that with better selection of cases we can increase this percentage to more than 75 per cent. In reviewing the cases we can point out the reason for poor results in all the 10 cases considered as being in that category. We will avoid manipulation under anesthesia in such cases in the future.

In going into somewhat more detail on the statistics on these cases we have noted that approximately one third of the herniated intervertebral disk cases had good responses to the manipulative procedure. In the others there was either very little change or the condition was aggravated. Even in those cases where good results were obtained we feel that sooner or later the patient will require surgery for the relief of pain. In only the occasional case where excellent results are obtained do we feel that improvement is likely to be lasting. As mentioned above, in no case with positive myelography has there been lasting good results from the manipulative procedure.

SUMMARY

We have given our findings on a series of cases subjected to manipulation of the low back under anesthesia. We have summarized our management of these cases and have pointed out that obtaining good results with this procedure depends chiefly upon adequate selection of cases. It is definitely a hospital procedure to be undertaken only by the orthopedic specialist. We do not feel that it is a procedure for the average general practitioner, even though he is skilled in manipulative technics, because we doubt his being sufficiently well versed in orthopedic diagnoses to make adequate selection of cases. The aim of this procedure is the restoration of normal structure and function to the lumbar spine and pelvis. We believe that manipulation under anesthesia has a definite place in the orthopedic management of chronic low-back conditions.

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Recent Advances in the Care of Common Fractures

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INTRODUCTION

The limits of this paper do not allow complete and comprehensive discussion of all aspects of the many types of fracture management. Therefore, I will consider several important basic treatments of fractures from a physiologic standpoint. Authorities in the fields of orthopedics have always disagreed, and still do today, on which of certain methods achieve the most effective results. But their differences are rooted chiefly in the physiologic approach to a problem, for the same results may be achieved in a particular condition by methods completely foreign to each other.

It has always been interesting to compare recent literature with the old; to observe the trend of thinking then and now. Howe,[1] in his treatise on fractures and dislocations written in 1879, condemns the use of tight roller bandages, salves, and lotions in the treatment of fractures and recommends use of extension and counterextension. He also stated that the manipulative reduction of fractures, in intelligent and persevering hands, had been so generally successful, that it would be rash to try harsher means until repeated and varied trials of the physiologic method had failed. It seems to me that Howe was extremely farsighted in that he advocated a method of fracture reduction which is still in use although the means of fixation have changed.

Reduction, retention, and re-education have remained the three R's of the orthopedist, but at different periods varying emphasis has been attached to the importance of each phase. Reduction has always been regarded as essential, with certain exceptions. Retention or immobilization and re-education, however, have held a controversial position throughout surgical history. In the past, insistence upon absolute fixation of a limb resulted in many stiff joints, a complication from which we are not entirely free today. However, early movement and massage improved results, so that until recently the removal of splints and massage was an essential part of the treatment. The importance of early and complete fixation in obtaining firm union has not been lost sight of, and the effort to combine the advantages of both methods has resulted in modern developments. The importance of the immediate treatment of traumatic shock is well recognized.

PRINCIPLES OF REDUCTION

Certain basic principles of reduction should be re-emphasized. In the past, many authorities on orthopedics advocated delayed reduction while others advocated immediate reduction. Immediate reduction has the following advantages: (1) It reduces the size of the hematoma, (2) limits and reduces reactionary swelling, (3) removes pressure from soft parts, particularly blood vessels and skin, (4) relieves patient of pain, (5) can usually be more easily accomplished as the bony parts are not obscured by swelling and the tissues are more lax. Delayed reduction may be necessary, however, for the following reasons: (1) The presence of shock, (2) necessity for the treatment of associated injuries first, (3) presence of infection, which is today not as vital as previously due to the use of antibiotics, (4) absence of certain necessary retention apparatus, (5) because the method of retention combines slow reduction of the fracture by traction.

There are only three methods of reduction from which to choose; they are manipulation, continuous traction, and operative methods. Each is appropriate for individual cases, and they also may be combined to meet various difficulties. The primary purpose of traction is reduction and not retention. It is now recognized that skeletal traction of long bones has increased the number of ununited fractures. This statement does not condemn the use of traction, but indicates that the great forces available when using skeletal traction have been misapplied and used for retention or over-reduction. Correctly used, skeletal traction is one of the greatest blessings of modern orthopedic technic.

Re-education is perhaps the most important single feature of modern methods. The reduction and retention of a Colles fracture in an elderly woman may be perfect, but unless she is instructed to move her fingers and shoulder, and care is taken to see that she does it, permanent stiffness of the hand and shoulder may develop. The same rule applies to fractures elsewhere.

Application of generalities to certain specific examples may be employed to illustrate present trends of fracture therapy. Many great advances resulted from the experiences gained during World War II. Little was known about emergency treatment of bone and joint injuries until World War I, when experience established that the best treatment was wide excision of devitalized tissues and removal of foreign bodies under sterile technic. These principles seemed to have been forgotten between the wars and had to be relearned in World War II. The safest, simplest method of mass treatment of compound fractures of long bones has been found to be skeletal traction. Internal fixation should be attempted only if the surgeon is adequately trained. In one large series of fractures treated with skeletal traction 82 per cent united.

Primary internal fixation of fractures is advocated by Keon-Cohen[2] in both simple and compound fractures when necessary (1) to maintain reduction in unstable fractures, (2) to secure complete reduction with efficient immobilization in fractures which unite slowly, (3) to simplify management of multiple fractures, and (4) to secure perfect apposition in fractures which require operative reduction.

As with the discussion of types of treatment, limits are set upon the number of specific fractures which can be discussed. Therefore, certain types will be discussed, but always with the thought in mind that every physician must choose a method of management in line with his own abilities and the needs of the individual case.

A common type which often causes a marked degree of deformity is that of complete fractures of both bones of the forearm. Rotational deformities are common. Many doctors advise immediate open reduction and internal fixation in certain conditions. These are (1) oblique fractures of the shaft of the radius with inferior radioulnar dislocation and (2) compound fractures of both bones with skin loss of such degree that only immediate skin flap can provide adequate cover. Surgery may be indicated later in unstable radial fractures where radial length cannot be maintained, in delayed union or nonunion, or if primary reduction is prevented by severe associated injuries.[2]

COLLES FRACTURE

Colles fractures should be thoroughly and accurately reduced to restore the normal length of the radius and ulnar deviation of the hand, and to avoid loss of integrity of the distal radioulnar joint. Reduction is best maintained in moderate palmar flexion, or the Cotton-Loder position with ulnar adduction. Comminuted fractures of the distal end of the radius cannot be held in a satisfactory position by plaster alone. A small threaded wire or Kirschner's wire passed through the first metacarpal and incorporated in the cast after accurate reduction is an ideal method of maintaining correction of deformity and length of the radius.

The inadequacy of our present treatment of the most common Colles fracture is illustrated by Gartland and Werley[3] in their evaluation of a series of healed Colles fractures. They concluded that the original reduction in *all* cases had been inadequate, and that the method of immobilization was inefficient and inadequate. Sixty per cent of the series, when re-examined 18 months after injury, showed fracture healed in a position typical of a fresh unreduced Colles fracture. In spite of incomplete reduction and inadequate immobilization, functional results were found to be surprisingly good. This functional recovery must be attributed to the innate ability of the wrist joint to overcome and to compensate for residual bony deformity, rather than to the original treatment.

DISTAL RADIAL FRACTURES

The transfixion method of ulnar pinning will be the method of choice for distal radial fractures. This method, presented by DePalma[4] for primary treatment of comminuted distal radial fractures, consists of reduction of the fracture by traction and molding of the fragments. The corrected position is maintained by means of a threaded wire passing through the ulna, at a point about 1½ inches from the tip of the ulnar styloid process, to the most distal radial fragment, which invariably includes the radial styloid process. The wire is clipped just beneath the skin and a plaster cast applied. When the plaster has set, traction is released and the arm is placed in a sling. Finger, elbow, and shoulder movements are immediately instigated. The wire and cast are removed in 8 weeks. Analysis of the DePalma cases revealed no infections and the method yielded a satisfactory percentage of excellent and good results. The current trend is toward regarding the clinical rating of the

functional capacity of a wrist joint of far greater significance than a rating based on roentgenographic study.

CLAVICULAR FRACTURE

Simple fracture of the clavicle can in many instances present a difficult problem. With a fractured clavicle, the shoulder girdle muscles tend to pull the shoulder toward the apex of the truncated cone of the thorax, thus shortening the clavicular strut and increasing deformity at the fracture site. Many devices have been recommended to lift the shoulder and force it back and out, but few, if any, accomplish true immobilization. The figure eight dressing immobilizes neither the acromioclavicular, the sternoclavicular joint, nor the fracture site. Severely comminuted and displaced oblique fractures and those in the middle third that will not interdigitate and lock at reduction should be immobilized. The following method of immobilization is recommended by Quigley.[5]

A table is placed with one end against a wall and the patient sits with his back to the wall and with a piece of plank beneath the buttocks. A broomstick is placed between the wall and the plank edge at a 45 degree angle. A felt pad is placed against the dorsal spine and the patient lies with the vertebral column against the broomstick and the arms hanging on either side of the table. The fracture site can then be infiltrated with procaine and manipulated without discomfort. Reduction and interdigitation of certain transverse fractures can often be accomplished through the skin with towel clips. After suitable padding, plaster bandage is applied over each shoulder, with care to compress the bandage against the thorax rather than up into the axillae. Before setting has occurred the broomstick is withdrawn and replaced outside the plaster.

INTERTROCHANTERIC FRACTURE OF THE FEMUR

An interesting analysis of management in 126 cases of intertrochanteric fractures of the femur at Mayo Clinic was presented in 1950.[6] Nonsurgical treatment was used in 63 cases and included four methods; skin traction only, skeletal traction, cast only, and skin traction with cast. Of 61 patients traced, 60 per cent showed excellent or good results regardless of the type of fracture. Average hospital stay was 79 days. Twenty-nine per cent had complications during convalescence and mortality rate was 25 per cent. Open reduction with internal fixation was used for 64 fractures. Fixation was accomplished by a variety of means, but of 61 patients traced, 80 per cent had excellent or good results. In this group average hospital stay was 75 days. Only 24 per cent had malunion compared with 54 per cent of those treated conservatively. Twenty-three per cent had complications and mortality rate was only 8 per cent.

Scott[7] reported 100 cases of trochanter fractures treated conservatively and surgically using two types of traction, the Thomas splint and Russell traction. Traction was continued 8 to 12 weeks and patients were walking before discharge from the hospital. Comparative results in his series showed very little difference in function, although the hospital stay of those treated conservatively was approximately 4 times longer than those treated surgically. There were more deaths in his series from surgical treatment.

SUPRACONDYLAR FRACTURE OF THE HUMERUS

The only other specific fracture I will discuss is supracondylar fracture of the humerus. Three methods of treatment are common today: (1) Manipulative reduction and fixation in a plaster cast with a "collar and cuff" sling, (2) open reduction and fixation, and (3) sustained traction. Skeletal traction through the olecranon has become the method of choice of Hoyer.[8] His method consists of inserting a small Schmerz hook-clip into the olecranon through two small skin incisions. The fracture is reduced under fluoroscopy, the arm is placed on an abduction splint, and traction maintained by means of rubber tubing. Tendency toward displacement can be corrected easily by altering the direction of the traction. Traction is continued for an average of 21 days, after which active movements and weight-carrying are instituted. Passive stretching and massage are forbidden. According to Hoyer, his results by skeletal traction are superior to those obtained by manipulative reduction and plaster, are as good as operative treatment, and result in fewer complications. This method of treatment is directly opposed by Evans[9] who is a firm advocate of surgical intervention. He feels that operative reduction has failed previously because of the position of the incision and the operative trauma.

RIB FRACTURES

According to Coleman and Coleman,[10] a logical treatment of rib fractures is internal fixation to stabilize the chest wall. In a series of only a few cases of multiple rib fractures with varying degrees of shock and paradoxical chest wall motion, internal fixation of fracture sites by wire corrected the disturbed physiology of the thorax immediately. Permanent fixation of rib fractures cannot be accomplished by simple end-to-end wiring since respiratory excursions and cough soon lead to fragment dislocation. The fragments must be fixed in two planes. Transverse rib fractures are immobilized by wiring overlapped fragments, or by an end-to-end approximation over a bone peg. Intramedullary pegging of transverse rib fractures accompanied by end-to-end wiring leads to sturdy fixation. This type of management seems to me slightly radical except in the most extreme instances.

DIATHERMY THERAPY

The controversy regarding use of short wave diathermy in fracture treatment should be mentioned. Considerable experimentation has been carried out to prove or disprove the efficacy of this modality on bone repair. Hutchison and Burdeaux[11] conducted a series of experiments using a standard time and current denominator. Results with tibial grafts indicated that diathermy delayed healing of the graft and that new bone was less mature and callus formation more abundant. Similar observations were made in a series involving the midshaft fractures of both radii. Diathermy delayed healing of skin incisions with significant edema of the skin and underlying tissue. During the first few days little difference was noted in the fracture sites but in 10 to 15 days, diathermy-treated extremities showed little callus. By 21 days there was definitely delayed healing, excess of poor quality callus, and a minimum of osteoporosis, and at 30 days there was sclerosis of the bone ends.

SUMMARY

It has been impossible to catalogue and outline every type of fracture and to advocate any one single treatment. An attempt has been made to illustrate the premise that no single factor determines the outcome of a fracture, but a combination of accepted methods in the hands of that individual whose results can

justify the treatment given. Examples of present controversial methods have been cited from recent literature. Again I repeat, there is no one single treatment for any one fracture which yields the same results in different hands.

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REFERENCES

1. Howe, A. J.: A practical and systematic treatise in fractures and dislocations. J. M. Scudder, Cincinnati, 1879.
2. Keon-Cohen, B.: Primary internal fixation of fractures. M. J. Australia 2:942-945, Dec. 31, 1949.
3. Gartland, J. J., and Werley, C. W.: Evaluation of healed Colles' fracture. J. Bone & Joint Surg. 33-A:895-907, Oct. 1951.
4. DePalma, A. F.: Comminuted fractures of the distal end of the radius treated by ulnar pinning. J. Bone & Joint Surg. 34-A:651-662, July 1952.
5. Quigley, T. B.: Management of simple fracture of clavicle in adults, in Year book of orthopedics and traumatic surgery, edited by E. L. Compere. Year Book Publishers, Chicago, 1950, pp. 187-189.
6. Bickel, W. H., and Jackson, A. E.: Intertrochanteric fractures of the femur: analysis of end results of 126 fractures treated by various methods, in Year book of orthopedics and traumatic surgery, edited by Edward L. Compere. Year Book Publishers, Chicago, 1950, pp. 195-197.
7. Scott, J. C.: Treatment of trochanteric fractures. J. Bone & Joint Surg. 33-B:508-512, Nov. 1951.
8. Hoyer, A.: Treatment of supracondylar fractures of the humerus by skeletal traction in an adduction splint. J. Bone & Joint Surg. 34-A:623-637, July 1952.
9. Evans, E. M.: Letter to the editor: Trochanteric fractures of the femur. J. Bone & Joint Surg. 34-B:333-334, May 1952.
10. Coleman, F. P., and Coleman, C. L.: Fracture of ribs: a logical treatment, in Year book of orthopedics and traumatic surgery, edited by Edward L. Compere. Year Book Publishers, Chicago, 1950, pp. 178-179.
11. Hutchinson, W. J., and Burdeaux, B. D.: Effects of short wave diathermy on bone repair, in Year book of orthopedics and traumatic surgery, edited by Edward L. Compere. Year Book Publishers, Chicago, 1951, p. 57.

ADDITIONAL REFERENCES

Bonnin, J. G.: A complete outline of fractures. Ed. 2. William Heinemann, London, 1946.

Venable, C. S., and Stuck, W. G.: The internal fixation of fractures. Charles C Thomas, Springfield, Ill., 1947.

Hip Fractures and Their Management

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Fractures about the coxal articulation are most likely to be found in elderly people. Because of this factor and the usual associated poor medical status, prognosis in these cases is usually poor. Any published results with mortality of less than 10 per cent and over 60 per cent functional and painless results are looked upon askance by the doctor who has managed any appreciable number of these lesions. Favorable results, even a year after repair may be seen in a different light at the fifth year. Too often early conclusions are accepted and patients discharged.

Fractures of the hip demand care by a physician qualified for their management—a general surgeon who does a fair amount of fracture work or an orthopedist. These fractures need special attention, whether conservative or operative measures are to be used, and no physician should undertake their care unless he is competent to do so and is prepared to spend the time needed for handling them.

Treatment should be started immediately for whether or not the patient survives will depend upon the adequacy of this care. The shock resulting from unreduced and unfixed parts makes all other conditions trivial by comparison.

Any suspected fracture should be x-rayed. This has become such a commonly accepted rule that recently in California courts, it was accepted without medical testimony that to rule out or diagnose a fracture, the injured part must be x-rayed.

No patient should be denied care because of his advanced age. In the immediate past, cases have been declared terminal and fractures left unrepaired. Weeks later, with the lesion still in existence along with decubitus and other disturbances, a major problem develops. Many people who have spanned the dangerous 50 to 60 age period, which will destroy most of us, have an undetected stamina which will preserve their lives, even in the face of more than moderate insult to their bodies. Recent or chronic paralytic states, diabetes or cardiac conditions are not contraindications for care. If the hip is managed properly and early, then it is feasible to manage the other conditions. Even a pathologic fracture should be aligned and fixed, as often early impressions of a malignancy are proved false.

The structure of the hip should be considered briefly. It is a ball-and-socket joint with universal motion. It is supported and moved by soft tissue structures running at varied angles about it. However, these parts counterbalance their pulls and supports by opposing forces. Thus, it is important to obtain good reduction of fractures so that the pulls and supports can be normalized and utilized to assist rather than to antagonize it. In the younger person the angle of the neck of the femur is greater than a right angle. As age increases the angle decreases until it approaches a right angle. This change should be considered in reduction. It also explains how forces thrust upward through the leg or downward through the torso exert their greatest pressure on this area. In placing internal fixation appliances it is well to remember that the neck of the femur is only two-thirds as wide in the lateral plane as the upper portion of the femoral shaft. Even an inferior one-third thickening of the femoral neck would assist fixation.

The blood supply to the head of the femoral neck is entirely capsular, from a therapeutic standpoint. In most fractures of the femoral neck the anterior capsule is torn, as evidenced by the severe external rotation of the lower extremity. But the posterior capsule is intact and will support the blood supply. The anterior capsule fibers reach out to the intertrochanteric line but the posterior fibers fall short of the line. The posterior capsule is attached to the femur neck half way between the posterior intertrochanteric line and the center of the femoral head. Thus, the average fracture of the femur neck conforms to no particular type in relation to the capsule. Generally fractures should be regarded as high or low femur neck fractures. The low neck

lesion, unless it is oblique, usually leaves the posterior fibers intact.

A fracture of the posterior lip or rim of the acetabulum is diagnosed by symptoms and x-rays. However, in many fractures, especially those undisplaced or with slight displacement, much careful examination of the x-rays is necessary to visualize the posterior lip through the dense femoral head. Varied angulations of film often merely further confuse diagnosis. I believe that this is the lesion most often missed. After a few days of bed rest following the trauma, the patient is relatively free of pain and a false sense of security exists. Without weight-bearing no irritant exists. If the patient is allowed up without support, the hip will soon bother him, but as the x-rays were thought negative he is reassured that it is merely an adjustment stage of recovery and that this upset will soon disappear. Actually the head of the femur is beginning to wander. Regional ecchymosis and the rapid formation of scar in the gluteal area give pseudo-support for a time and have often stabilized the part. But this unsound therapy cannot be condoned. The patient with the luxated hip is now frankly in distress and correction now becomes a major procedure. This possibility may be avoided by careful examination and knowledge that such a lesion exists.

It is my belief that all dislocated hips in the aged are accompanied by a fracture of the posterior lip of the acetabulum. If the condition is recognized, bed rest and traction to the leg for 4 to 6 weeks is good therapy, and generally ambulation with crutches follows. I believe that often internal fixation of the posterior lip with screws and other types of appliances is rather useless. I have seen more ossification of soft tissue in this area following internal fixation of the posterior lip than in any other part of the body.

A central acetabular fracture is easily visualized by x-ray. Traction again is the treatment of choice. However, if the femoral head has penetrated the acetabulum, it must be removed. Skeletal traction through the intertrochanteric area will often pull it out and restore a fair joint. Intra-abdominal corrections are needed in the most severe lesions, and mallet force may be needed to push the invading head out of the cavity. The acetabular fragments are smoothed down and simple traction and bed rest follows as with the simple lesion. The hip is usually fused following such a lesion as the articular cartilage dies. However, this result is considered good as the part is painless and stable.

Fracture of the neck of the femur is also a common lesion. For all practical purposes a high neck fracture usually leaves an avascular head so repair must be rapid. Actually it is as though an autogenous bone graft were being worked with, but this feat is given no consideration whatsoever. If the types of fixation that are used in the hip were used on a graft elsewhere, it would be thought shortsighted at best. If the stresses and strains allowed in the internally fixed femoral fracture were allowed in grafted sites else where, it would be thought very stupid indeed.

Granulation must be obtained from the outer parts, a replacement as it were, and then fractures can be considered healed. Bone cells are laid down in the tying architecture of the old head and the upper portion of the neck. If conditions are ideal it is possible that absorption and replacement occur simultaneously and the changes are not seen in x-rays. However, without a good reduction and adequate fixation absorption progresses faster than replacement or repair and this results in what is known as aspectic necrosis.

We are familiar with a good reduction and the ideal valgus tilt of the head, but what is adequate fixation? An internal appliance should not only penetrate the cortex of the head but should be buried deep in the acetabular wall as well, completing fixation of the autogenous graft. I do not believe that the restricted motion resulting from this repair disturbs the patient if he understands the consequences of nonunion of the fracture. The referring physician often exerts undue influence with his alarm regarding potential loss of motion and his unsound belief that if his patient is unable to put a sock on the limb, the repair has failed.

Prognosis in a low femur neck fracture can be favorable if the posterior capsule is kept in mind. Mechanically, there is a large base in which to bury the deep portion of fixation and thus adequate fixation is assured. But the upper portion does not compare to an autogenous bone graft as there are two viable sections of osseous tissue in approximation.

Planes of fracture lines also influence repair results. For example, a transverse fracture through the femur neck would have a shearing force of weight-bearing as an irritant. An oblique fracture approaching almost a right angle to the transverse, has been thought to be assisted in healing by the impacting forces of weight-bearing but I question this reasoning. Often the obliquity extends high into the neck, and even into the femoral head. Here reduction can be effected easily, but internal fixation is difficult as there is little or no solid base left in either plane, depending upon the direction of the fracture in which to bury the appliance. Unless the fixation is buried deep in the acetabulum, the head will, in a few days, rotate itself free and out of alignment with the neck. Also, the telescoping of these lesions can be bothersome. An obliquity noted in the anteroposterior x-rays is easily evaluated and expected, but often is undetected because of poor lateral x-ray films or the failure to examine them well. It is well to remember that an oblique fracture may exist in any plane. Failure to use internal fixation in a fracture of the neck demands explanation for the treatment of choice is internal fixation.

Several types of anesthesia may be used but the spinal method is contraindicated for obvious reasons. It is illogical that a patient with a fractured hip be turned about to get at his back when there are so many different ways to induce anesthesia. The bed should be moved to surgery to save the patient unnecessary pain from being placed on a surgical cart. Collin hitches are placed on the ankles and the patient is then ready for the fracture table. A few cc. of a solution of ½ gram of Pentothal in 20 cc. of water may be administered as anesthesia before the patient is moved onto the fracture table. The patient is fixed to the table and the Leadbetter maneuver is used to reduce the fracture. No additional anesthesia is given unless the patient is quite young.

Two portable x-ray units are used to obtain control films. Drapes may be placed over machines to preserve the sterile field. It is well to mark the upper border of the cassette used for the lateral view, in order to avoid confusion of the tuberosity of the ischium with the crest of the ilium.

After an acceptable reduction is shown in the x-rays, the patient is prepared surgically and draped. The greater trochanter of the femur is then located by palpation. It is wise to use some local anesthesia as this reduces the amount of additional anesthesia needed and facilitates the use of a narrow spinal needle in locating operative landmarks. A longitudinal incision is made starting just below the greater trochanter and extended downward as desired. I make small one-half to one-inch approaches, for a patient may rip open his incision and a small incision is more difficult for him to reach. The soft tissues below are opened in the same plane and the flattened area just below the greater trochanter, which is the base for insertion of the internal fixation appliance, is exposed.

I do not think there is any use for a reamer in neck fractures. As much as possible of the cortex at the base must be kept intact. A hole not more than one-fourth inch in diameter is drilled at the flattened base and a plain heavy guide wire that the cannulated nail is just able to slide over is inserted through the medullary area of the neck and into the head. The wire should be kept low on a parallel with the floor in both the anteroposterior and lateral planes as mechanically the nail may later tend to be worked out of the femur head by adduction and external rotation forces. However this rationale may have to be modified if the fracture line is oblique; the nail must be buried in the deepest portion of the remaining head.

After the guide wire is in place x-rays are taken, and if the guide is successful, the nail is driven in. I prefer the cannulated Smith-Petersen nail made of stainless steel. In some aged people all this can be done without additional general anesthesia. Younger people will need anesthesia. With the driving of the nail and the impaction of the fracture general anesthesia is needed. Even though the patient has done without any additional general anesthesia to this point, the anesthetist should be informed of the next step and the nailing delayed until he is ready for it.

After the nail has been driven final x-rays are taken, and routine closure is done. It is best to use sutures instead of skin clips as older patients remove clips more easily.

Upon awakening the patient is usually fairly comfortable. Semi-Fowler bed rest is instituted as soon as the patient emerges from the anesthesia and he is moved about in bed.

The better the general progress of the patient, the more conservative should be the institution of ambulation and the more carefully must the hip be protected. However, if progress is poor, the patient is helped to sit up and encouraged to stay up as much as possible, with little concern about its effect on the hip. This management may seem paradoxical, but it is the only intelligent way to manage hip lesions in the elderly patient.

Here I want to digress and emphasize three points. The first is that results of fixation of fractures of the femoral neck in patients in their sixties or younger will be less good than those in older people. Whether this is caused by a pre-existing unrecognized osseous state in these younger people or whether it is their better muscle pull that tends to offset fixation is not known. I think it is muscle pull and that younger patients should have external as well as internal fixation. The second is that a serrated guide-wire is never used as the cannulated nail may become buried in one of the serrations and push the wire ahead of it and perhaps cut it off. Many such wires have been removed from the lower abdomen. The third is that the nail should be as long as possible. A short nail is a waste of time.

Intertrochanteric fractures usually occur more often in younger people than other types. Fractures run through the intertrochanteric areas and the lesions are often comminuted. These fractures heal well by any repair method used because of stability of the femur head and neck, a good blood supply, and ease of maintaining reduction. However, if the lesser trochanter is comminuted severely, recovery may be stormy. True healing occurs well but the iliacus and psoas muscles may go into spasm resulting in an ileus. Internal fixation of these lesions is accomplished by much the same method as is used in fractures of the neck except in the appliance used. A femoral plate may be attached to the Smith-Petersen nail with two or three femoral screws. A Neufeld angled appliance is adequate. A reamer may also be used in preparing the base in thees cases and a large hole that allows exploration of the femoral neck for placement of the appliance is permissible. The set screws in the femoral shaft will stabilize the appliance.

Subtrochanteric fractures are repaired in much the same way as the intertrochanteric, but often the femoral plate must be much longer. At least three screws should be used in the distal fracture portion, or a spica cast should be applied.

Hip fracture cases, even though apparently progressing satisfactorily, should not be discharged until they have been under observation for at least 3 to 5 years.

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REFERENCES

Brailsford, J. F.: The radiology of bones and joints. Ed. 4. Williams & Wilkins Co., Baltimore, 1948.

Bergmann, E.: Role of aseptic bone necrosis in hip lesions. Am. J. Surg. 6:218-235, Feb. 1944.

Compere, E. L., and Wallace, G.: Etiology of aseptic necrosis of head of femur after transcervical fracture. J. Bone & Joint Surg. 24:831-841, Oct. 1942.

Haas, S. L.: Longitudinal fracture of head of femur associated with dislocation of femur. Am. J. Surg. 69:402-405, Sept. 1945.

Hopkins, H. H.: Intertrochanteric fractures and fractures of neck of femur; guide and method of procedure for accurate placement of nail. J. Bone & Joint Surg. 28:244-249, April 1946.

Key, J. A., and Conwell, H. E.: The management of fractures, dislocations and sprains. Ed. 5. C. V. Mosby Co., St. Louis, 1951.

Lloyd, P. T.: The hip joint; a roentgenologic consideration of some of the pathologic states common to it. J. Am. Osteop. A. 40:109-112, Oct. 1940.

Magnuson, P. B.: Report of 59 consecutive cases of ununited fractures of neck of femur. Surg. 7:763-772, May 1940.

Phemister, D. B.: Changes in bones and joints resulting from interruption of circulation; general considerations and changes resulting from injuries. Arch. Surg. 41:436-472, Aug. 1940.

Siris, I. E., and Ryan, J. D.: Fractures of neck of femur; analysis of 157 intracapsular and extracapsular fractures. Surg., Gynec. & Obst. 78:631-639, June 1944.

Speed, J. S., and Smith, H.: Campbell's Operative orthopedics. Ed. 2. C. V. Mosby Co., St. Louis, 1949.

Stuck, W. G.: Treatment of intertrochanteric fractures of femur. Surg. 15:275-291, Feb. 1944.

Summers, J. E.: Fractures of the hip. Internat. Abstr. Surg. 88:385-389, in Surg., Gynec., & Obst., May 1949.

Urist, M. R.: Injuries to the hip joint; traumatic dislocations incurred chiefly in jeep accidents in World War II. Am. J. Surg. 74:586-597, Nov. 1947.

Van Gorder, G. W.: Treatment of acute fractures of neck of femur. J. Am. M. A. 137:1181-1186, July 31, 1948.

Walker, W. A.: Traumatic dislocations of hip joint. Am. J. Surg. 50:545-549, Dec. 1940.

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Orthopedic and Traumatic Indications for Regional and Block Anesthesia

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INTRODUCTION

Regional and block anesthesia is defined in the New Gould Medical Dictionary[1] as "Anesthesia produced by injecting an anesthetic solution into the nerve trunks supplying the operative field (regional block), or infiltrating close to the nerves (infiltration block), or by a wall of anesthetic solution injected about the field (field block). In all these methods the nerve conduction is *blocked* and painful impulses fail to reach the brain." This can be easily stated as "applying a drug at a point along the course of a nerve and abolishing conduction distal to the site of the application."[2] Esterline[2] very succinctly described, in a recent issue of *The Journal of Osteopathy*, the varieties of blocks that may be used therapeutically or as definite anesthesia for surgical maneuvers. They are as follows:

1. Spinal block: The anterior and posterior roots of the cord are blocked in the subarachnoid space.

2. Epidural block: The anesthetic agent is deposited in the epidural space to block the spinal nerves.

3. Paravertebral block:* The block is performed by infiltrating the spinal nerves as they leave the intervertebral foramina.

4. Nerve block: A somatic nerve is blocked at some site along its course before it divides into its terminal branches.

5. Field block: The terminal branches of nerves are anesthetized by infiltrating at the border of the area they supply.

6. Infiltration and topical blocks: The actual nerve endings are blocked by local infiltration.

The drugs used for regional and block anesthesia are numerous and many have individual properties that determine their selection. The most common agent used is procaine either as a 1 or 2 per cent solution. The efficacy of procaine is enhanced by the addition of adrenalin hydrochloride in the dilution of 1:10,000 for nerve block or local infiltration.[4] Procaine or Novocain is rather short acting and thus other drugs have been sought which have a longer acting effect. Metycaine is thought to have a more prolonged action than procaine[4] as has Quinocaine.

A recent addition to the armamentarium is Efocaine which is composed of anesthetic agents (1 per cent procaine) in a nonoily solvent. The solution of anesthetic agents is at a critical saturation level and when deposited in the tissues is precipitated by the body fluids, forming a concentrated deposit at the site of injection which is liberated over a prolonged period. This is used only in nerve or paravertebral block or as local infiltration.

The older prolonged agents were actually destruction type drugs such as alcohol, and many times the patients had muscle paralysis with persistent neuralgias after their use for paravertebral sympathetic block. Mandl[3] reported the use of 6 per cent phenol for experimental paravertebral sympathetic blocks. Some British workers[5] have also used phenol clinically, but feel that they get a more effective sympathetic destruction with a 10 per cent aqueous solution.[5] The explanation for its use is that phenol has a selective affinity for sympathetic nerves and thus will not destroy somatic nerve tissue. Xylocaine has been found quite effective and superior to procaine in 165 cases of brachial plexus blocks for upper extremity surgery.[6]

The first apparent use of local anesthesia in orthopedic work is described as being carried out by Conway in New York in 1885,[7] who utilized cocaine regional anesthesia for reduction of both a wrist fracture and a dislocated elbow. The first work on regional anesthesia was published by Braun in 1905, and was again popularized during the First World War.[8] The impetus for the use of local anesthesia in the closed reduction of fractures can be laid to the successful use of this technic by Böhler of Vienna around 1920.[7]

From that time to the present various men have advocated local anesthetic agents, usually procaine, for a variety of painful musculoskeletal syndromes along with its use in acute traumatic work for fractures, dislocations, and sprains. Added influence has been gained by the results of Judovich and Bates[9] in their treatment of segmental neuralgia and radicular syndromes with paravertebral nerve blocks of procaine or the pitcher plant distillate. Since 1930 a number of men have employed paravertebral injection of the sympathetic ganglia for both therapeutic and diagnostic purposes in respect to extremity pathology of vascular nature.[10] Leriche was one of the first to attack the sympathetic chain with temporary blocks of anesthesia to relieve vasospasm as well as painful states independent of circulatory changes. This work was further emphasized by De Takats, De Bakey, Ochsner and Burch who also treated circulatory ailments with paravertebral sympathetic blocks.[8] Thomas Lewis used peripheral nerve blocks for prognostic purposes in 1929.[3]

I will divide this discussion of indications for regional and block anesthesia into three major groups, namely:

1. As an anesthetic agent to relieve pain and thus permit further definitive treatment to the part
2. As a primary therapeutic agent
3. As a diagnostic and prognostic agent.

USE FOR RELIEF OF PAIN

The first group of indications comprises those where the regional or block anesthetic is used to obtain freedom from painful stimuli so that a surgical technic or manipulation can be carried out. This is particularly effective in fractures and dislocations of the distal portions of the extremities. I have used peripheral nerve block and local infiltration for fractures about

*The term "paravertebral block" is also used to designate anesthetic injection of the ganglia in the sympathetic chain along the spine for so-called temporary sympathectomies. Mandl[3] uses the term "paravertebral block" constantly for his work on block of the sympathetic chain. To avoid confusion this latter type of block anesthesia will in this paper be referred to as paravertebral sympathetic ganglion block.

the wrist and hand, but have had very little experience with local or regional block for closed reductions about the ankle. In the few cases in which I attempted this procedure I met with failure. This may be the fault of the operator since the value of this type of anesthesia has been stressed by others.[3]

As a routine procedure I feel that regional or block anesthesia in fractures and dislocations of the upper extremity proximal to the wrist is not indicated unless there are specific systemic contraindications to the use of a general anesthetic. My experiences with brachial block anesthesia for elbow dislocations and shoulder dislocations have been limited to four, all successful, but usually a general anesthetic is used. It is my feeling that there is far less muscle spasm and less trauma to the parts when the patient is anesthetized than when there is a peripheral block of the painful stimuli. Fractures of the metacarpals and phalanges are very easily handled with interosseous and digital blocks. This also holds true of fractures of the metatarsals and toes.

Where there are contraindications to general anesthesia it is possible to get adequate anesthesia of the upper and lower extremities by plexus blocks, specific root blocks as well as peripheral nerve blocks. In the upper extremity brachial plexus block will give good anesthesia from the shoulder down if the block is successful. If the fracture is distal to the elbow, it is possible to obtain anesthesia by blocking the major peripheral nerves proximal to the elbow, that is the radial, ulnar, and median.

The entire lower extremity can be anesthetized by paravertebral block of the first to fifth lumbar nerves on the side of the involved limb along with a sacral block anesthesia. Fractures and dislocations below the knee can be approached after conduction anesthesia of the tibial and the deep and superficial peroneal nerves. Local infiltrations for small avulsive fractures about the ankle and for sprains of the ankle have been done with the patient allowed immediate ambulation after strapping in selected cases. It is felt that there is less pain and far less swelling with this method plus the fact that the disability is said to be shortened.[8]

Treatment of local burns, repair of superficial lacerations, and debridement procedures can be handled very effectively with block anesthesia, which may be in the form of a nerve block or a field block. It is my opinion that a field block or local infiltration is contraindicated in cases of gross contamination or known infection. If conduction anesthesia is used in those conditions it should be a nerve block either at the plexus level or at some point along the course of the peripheral nerve or nerves supplying the zone, but proximal by some distance to the actual site of involvement.

One very definite indication for block anesthesia in orthopedic surgery is the repair of torn tendons. This is particularly true about the wrist, the advantage being, of course, that it is possible to determine the exact torn tissue and to correlate the proximal fragments with the proper distal segments. In these cases it is necessary to block the nerves below the point of motor innervation to the muscles involved, thus permitting the surgeon to have the patient duplicate a finger motion to produce a specific tendon movement. The surgeon is able to determine at surgery whether or not the function of the part has been restored.

In acute lumbosacral strain paravertebral block may be used advantageously prior to manipulation and subsequent strapping or institution of traction therapy. Clouse[11] described his approach to acute low backs with the use of caudal anesthesia and manipulation.

Spinal anesthesia is a form of block anesthesia[2] and I will discuss it at this time because of its advantages in orthopedic surgery to the lower extremities. I do not use it routinely, but I do feel it is the anesthetic of choice in difficult ankle fractures where there is gross displacement of the fragments with dislocation, as well as in amputation of the lower extremity. In the former this type of anesthesia gives maximal relaxation and permits excellent reduction; in the latter there are minimal disturbances to the patient and minimal complications. Spinal anesthesia is also the agent of choice for surgical procedure on the lower extremities where inhalation or intravenous anesthesia is contraindicated.

USE AS THERAPEUTIC AGENT

The second major group of indications comprises the use of regional or block anesthesia as a primary therapeutic agent. When used for this purpose, the anesthesia may be either long lasting or of a very temporary nature. Prolonged block has the disadvantage of causing associated impairment of the function of the nerve. This may be overlooked if the result of freedom from pain or improvement in the underlying condition warrants its use. Temporary blocks, although of very short duration, may be sufficient to change the course of the underlying ailment, with minimal associated effect on the nerve physiology.

Paravertebral and intercostal nerve block with procaine or Metycaine can be effective in the relief of pain in rib fractures where there is no gross displacement of the fragments and the only therapy has been immobilization with strapping. The analgesia obtained with the block many times makes the patient much more comfortable than if this approach was ignored. I have used the same technic for herpes zoster with fair results. When intercostal nerve block is attempted for injury to the rib cage, either fracture or severe contusion, the correct intercostal nerve must be blocked. I have seen a number of cases in which the physician claimed that the technic had failed when actually the proper intercostal nerves had not been injected. Prolonged anesthetic agents can be used and recent reports have been of the use of Efocaine for the dimunition of pain after thoracic surgery; intercostal nerve block has been done under direct visualization at the time of surgery.[12,13] I have used this drug for rib fractures too infrequently to determine if it is superior to the shorter-acting anesthetics for this type of case.

Acute muscle strain, whether in the cervical spine with associated torticollis or in the lumbar area, is many times improved with nerve block. In acute torticollis the superficial cervical plexus may be injected at a site on the level with the second cervical vertebra beneath the sternocleidomastoideus.[8] This will usually block the nerve supply to the involved spastic musculature, with resultant diminution in pain. Acute lumbosacral strain or lumbar myalgias are benefited with lumbar paravertebral blocks from the first to the fifth lumbar nerve. This can be done bilaterally. Infiltration of the actual sore muscle sites may be attempted; these sites are frequently revealed as trigger zones for the more chronic low-back pains. In the

low-back pain without positive evidence of underlying spinal disease, temporary anesthesia induced by blocking trigger points allows full activity and the use of osteopathic manipulative therapy, thus allowing nature to bring about a return to normal. Looking for and injecting these trigger points in low-back pain have produced beneficial results in the hands of a number of doctors. Caudal anesthesia also has been used for acute lumbar and lumbosacral strain.

Coccygodynia is a frequent problem. It has been attacked by local infiltration of the coccygeal area including its ligaments as well as by other more indirect approaches. Caudal block has been used with variable results. Dittrich[14] reports that in five cases in which he found sensitive nodules over the sacrum just lateral to the mid-line, infiltration with procaine completely relieved discomfort. He obtained permanent cure of coccydynia by surgically excising the tender nodule after he had once established it as the etiologic factor. It is his opinion that the coccygeal pain was entirely of referred nature from the soft tissue structures, probably fat tissue, making up these tender nodules.

Brachial plexus block as a therapeutic measure in neuralgic pain in the upper extremities is effective but it is usually a temporary measure and the underlying cause of the brachial neuralgia or neuritis must be looked for. Block can be used judiciously for the severe pain present with acute subdeltoid bursitis, as well as for any acute upper extremity pain. Procaine infiltration of the scalenus anticus muscle will relieve the symptoms of the so-called scalenus anticus syndrome. Judovich and Bates[9] report cases of marked improvement of this symptom complex with local block of the scalenus anticus muscle. Acute shoulder lesions, whether myalgia, periarthritis, or subdeltoid bursitis, can be benefited by local infiltration of the sore and painful zone, and they may also be helped by injection of the suprascapular nerve on the involved side.[8]

I have used procaine infiltrations of the area of the lateral epicondyle of the humerus and also the head of the radius in "tennis elbow." This therapy plus heat and osteopathic manipulation has brought about resolution of the symptomatology in a high enough proportion of cases for it to be considered an effective method. Block of the somatic nerves of the upper extremity may produce selective sympathetic block reactions because of the anesthetic agent's action on the sympathetic fibers which course out over the somatic trunk. Thus there may be some benefit derived in the spastic vascular states of the upper extremity when a brachial block is performed. This latter of course is not the usual choice for such a disability since a more definite therapeutic result may be obtained by direct injection of the sympathetic chain.

The use of sciatic block has become common since the first report on perineural injection of the sciatic nerve was presented in 1926 by Harris.[15] I have not been satisfied with the results I have obtained, probably because sciatica is a painful symptom for which the underlying disease state must be found. In my own experience the finding of idiopathic sciatica is the exception rather than the rule. Usually sciatica originates from an unstable lumbosacral joint, either congenital or acquired, with or without lumbar spondylosis and spondylarthrosis; from a herniated or degenerative intervertebral disk; or from spondylolisthesis. With the herniated intervertebral disk there is often a neuritic pattern with reflex changes, paresthesia, and muscle weakness.

Less frequently sciatica may have its origin in destructive bone disease of the lumbar spine or pelvis, hip joint disease, arthritis and arthrosis of the lumbar spine, myelopathy, or cord or cauda equina tumor. The proportion of sciatica from all other causes, including idiopathic sciatica, I find to be very small. Since in the majority of these cases the nerve is being injected or blocked distal to the site of origin of the pain, I cannot logically explain why benefit should be expected. In any event its efficacy is questionable in my own hands.

I have had no experience with the epidural or peridural blocks for sciatic pain but I feel that their rationale is far clearer than that of sciatic block. The literature on epidural and peridural blocks reports improvement in a relatively high proportion of cases, although it may be temporary.[8] Caudal anesthesia for the treatment of sciatica not only blocks the origin of the painful impulse but by its presence may break up adhesions which some investigators claim are present. Thus the actual causative factor may be eliminated. I have operated upon a number of patients with suspected herniated intervertebral disks at the third, fourth and fifth lumbar levels and have not found true herniation, but definite adhesion formation between the nerve root and the posterior longitudinal ligament from a mild retropulsion or adhesion between the nerve root and the overlying ligamentum flavum. These cases were free from sciatic pain postoperatively. If ambulant block injection is to be attempted I believe it should be paravertebral in location.

Procaine infiltration of the obturator nerve and the nerve to the quadratus femoris has been reported successful in 19 cases.[16] The improvement in motion of the joint and the freedom from pain are usually temporary but occasionally a patient will have prolonged benefit. This can be attempted in the old osteochondropathies, degenerative arthritis of the hip, and cases of ununited fracture.

Acute meniscal lesions of the knee can be approached from the standpoint of infiltrating the area of damage with procaine, allowing for a break in the reflex spasm, and bringing about temporary relief of the pain and disability. This does not cure the torn cartilage but it may give temporary improvement when associated with osteopathic manipulation, heat, and immobilization. In osteoarthritis of the knee infiltration of the collateral ligaments with local anesthesia diminishes the distress. Mandl[3] describes a technic for actually injecting the anesthetic agent into the articular cavity, along with periarticular infiltration in degenerative arthritis.

Temporary denervation of the ankle joint can be performed by blocking the articular branches of the posterior tibial and the deep peroneal nerves as they enter the medial and anterior aspects of the capsule. A report of a case has appeared in which surgical denervation of the ankle joint was carried out by sectioning these nerves with good results.[17]

I have attempted relief of pain in old fractures of the calcaneus by local infiltration of the entire heel area with poor results. It is possible to block the sensory nerve supply to the calcaneus by injection of the tibial and sural nerves in the lower third of the leg. The

technic of surgical resection of these nerves in such patients has been successful in seven published cases.[18]

In this large group of indications for block anesthesia for primary therapy must be included the paravertebral sympathetic ganglion block. Infiltration of the sympathetic ganglia has been used effectively for thrombophlebitis and phlebothrombosis; acute arterial occlusion from emboli, thrombosis, and traumatic vasospasm; major and minor causalgia; phantom limb; frostbite; immersion and trench foot; peripheral arteriosclerosis; Sudek's atrophy and reflex dystrophy; post-traumatic states due to arterial injury; and Volkmann's ischemic contracture.

Although arterial damage is not a frequent complication of fractures, it can occur. Direct occlusion from the fragments or a tear of the artery wall are most common. Spasm alone may give the picture without actual damage to the artery. Cregan[19] reports a case of prolonged arterial spasm of traumatic origin from a supracondylar fracture of the humerus in which exploration for arterial damage to the brachial artery was performed with the finding of no arterial injury. In this patient the radial pulse was absent for 9 hours. Brachial plexus infiltration with 1 per cent procaine was done with return of warmth to the hand, and the radial pulse returned in a few hours. In those cases where actual artery damage has occurred definitive treatment to the torn vessel must be performed, but relaxation of the associated arterial spasm is necessary and can be carried out best by sympathetic block at the stellate ganglion level or at the first two thoracic ganglia for the upper extremity cases or the lumbar sympathetics for involvement of the lower extremities.[20] Hedrick and his associates[21] describe four cases of acute tear of a main artery from fracture with the treatment directed to repair of the torn vessel and sympathetic block with two eventual amputations. Spear and Janes[22] reviewed four cases at the Mayo Clinic with complete tear of the brachial artery accompanying either dislocation of the elbow or supracondylar fracture with ligation of the torn vessel but not repair. In all the cases there was no loss of the extremity with this complete interruption of the major vessel of the upper extremity. It is felt that there is a superabundant collateral circulation to the upper extremity about the elbow and the primary element is to decrease the hematoma formation about the antecubital fossa and permit the collateral circulation to remain intact. Therefore, it is the opinion of Spear and Janes[22] that the most important element is recognizing that injury has occurred and ligating the torn vessel as soon as possible to prevent impairment of the collateral circulation. It is also their opinion that the torn vessel acts as a periarterial sympathectomy and thus sympathetic block by procaine is not indicated.

Acute arterial occlusion from embolus or thrombosis is best attacked by early preliminary treatment with sympathetic block of the sympathetic chain by paravertebral technic or, in the case of involvement of the lower extremity, by spinal or caudal anesthesia. Associated medical therapy in the form of heparinization, analgesia, and vasodilators is also used. Mandl[3] goes so far as to say that he believes that arterial embolism may be relieved by paravertebral sympathetic block. He expresses the opinion that the accompanying vasospasm may be of greater importance than the actual embolus. Thus, if arterial spasm in acute arterial occlusion is treated, the collateral circulation may be adequate to save the limb. Although sympathetic block should be given a fair trial, its use does not eliminate the need for embolectomy if there is no response to the sympathetic block after 45 minutes.

The value of a paravertebral sympathetic block has been shown in phlebitic conditions and thrombophlebitis is not too infrequent following orthopedic procedures to the lower extremities. I have had favorable results from its use in thrombophlebitis following a meniscectomy and in two cases following surgery for hip fractures.

Major and minor causalgia of an extremity may be benefited by paravertebral sympathetic block. This syndrome is characterized by intense burning pain, worse in the distal portion of the extremity, with exacerbations resulting from emotional stimuli. The patient presents a glossy skin over the portion of the part involved, spindle fingers, and claw-like stained nails. The skin may become macerated because of the patient's reluctance to cleanse the part for fear of inducing pain. There may be bone changes of a diffuse glassy type from demineralization. There may be varying degrees of vasoconstriction or, more commonly, vasodilatation. The actual cause of this condition is trauma to a peripheral nerve. It is the opinion of Cullen[23] that it develops only after injury to the median or internal popliteal nerves. Mandl[3] was not too enthusiastic in his results from therapy by paravertebral sympathetic block. Other authorities give this form of treatment a high rating. Cullen[23] relates that out of 17 cases 13 had immediate relief following sympathetic blocks. Shumacker, Speigel, and Upjohn[24] relate that out of 90 cases 57 were treated with permanent sympathectomy (surgery or alcohol injection); excellent results were obtained in 81 per cent. Twenty-one of 83 patients responded to single or repeated procaine paravertebral sympathetic blocks. Paravertebral sympathetic block is considered the treatment of choice in the phantom limb following amputation.[3]

The use of sympathetic block in the treatment of frostbite, immersion foot, and trench foot is debatable. Most authors agree that this procedure is of value along with sympathectomy in the late stages of frostbite but in the early stage it is thought by only a few to be beneficial,[25,26] by many to be valueless,[27] and by some to be harmful. Lake[28] feels that the increased blood flow causes increased exudation and produces further harm. The neuritic symptoms and cold sensitivity state found after the patient has passed through the acute episode is usually benefited by sympathetic blocks.

The peripheral vascular states such as peripheral arteriosclerosis and thromboangitis obliterans are helped with procaine sympathetic blocks. The long acting agents such as 10 per cent phenol or alcohol can be used. Boyd and his associates[5] report good results in a large number of cases of intermittent claudication from the use of 10 per cent phenol in the blocking of the lumbar sympathetic ganglia. Paravertebral sympathetic block has no effect on Raynaud's disease. Fair results are reported for chronic ulceration of the lower extremities from lumbar paravertebral sympathetic block.[8]

Sympathetic block for Sudeck's acute post-traumatic bone atrophy and reflex dystrophy has been

found to be quite effective.[3] There is improvement in the edema, cyanosis, sensitivity of the part, pain, and the muscle and sensory changes.[20] Repeated injections may be effective, although in the late stages sympathectomy may be required.

The major complication of fractures around the elbow, for which we are all trained to be on guard and which we feel must be prevented at all costs, is Volkmann's ischemic contracture. This is the result of impairment to the circulation of the extremity by the constricting effect of casts, bandages, and other restraining devices utilized for immobilization. Sometimes it may result from fixation of the part in too acute an angle or from massive hematoma formation in the antecubital fossa. In this connection, it is wise to remember that acute arterial spasm can result from application of a tourniquet. Watson-Jones[29] describes a case of gangrene requiring amputation of an arm after 45 minutes of tourniquet application.

In the typical case of ischemic contracture the patient develops paralysis of the involved limb with contracture and destruction of the muscular elements. The circulatory impairment is not of a sufficient qualitative or quantitative degree to produce true gangrene. In my opinion that is the difference which determines whether ischemic contracture or gangrene will develop; in the former there is incomplete occlusion with associated venous engorgement whereas in the latter there is complete occlusion to the blood supply with complete anoxia.

An important point to keep in mind is that Volkmann's contracture can be found in the lower extremity. Thompson and Mahoney[30] report 42 cases in which 9 were the result of fractures of the femur. Early recognition of this complication is imperative so that treatment can be instituted as soon as possible. Treatment consists of removing all constricting bandages or dressings and the use of sympathetic block, which can be administered paravertebrally or as spinal anesthesia in the lower extremity cases. Adequate circulation must be restored to prevent permanent conracture from developing. Mandl[3] described a series of experiments in patients with no history of vascular injuries who had unpadded circular plaster bandages applied so that they permitted arterial circulation, but produced general congestion of the limb after 1 to 2 hours with swelling, redness, and pain in the toes. Novocain paravertebral block in the lumbar sympathetic eliminated the swelling and congestion as well as cyanotic discoloration of the toes in 30 to 40 minutes. Thus we find that both experimentally and clinically paravertebral sympathetic block is efficacious in the treatment of Volkmann's ischemic contracture. The treatment must be instituted within 6 hours.

USE FOR DIAGNOSIS AND PROGNOSIS

The last group of indications for block anesthesia comprises those in which it is used for diagnostic purposes. The use of paravertebral block will differentiate between peripheral neuralgia and radicular pain of more central origin. Paravertebral block will have no beneficial effect on pain originating from organic disease, bone destruction of the spine, or cord disease, but segmental neuralgia will be improved; frequently there is complete relief of pain.

Local infiltration of trigger points resulting in relief of pain in coccygodynia can be an aid in determining the site of referred pain and permit definitive surgery in the form of excision of the tender nodules.[11] The value of paravertebral infiltration in low-back cases is found in the differentiation of simple lumbosacral strain from disk herniations. In the former there will be relief of the distress.

Infiltration of the scalenus anticus with relief of the symptom complex is an indication for surgical treatment with scaleniotomy.

The selective neurectomies, such as an obturator neurectomy for hip pain, can be evaluated prior to surgery by nerve blocks. If the injection has been properly placed and there is no improvement, surgery will be of no benefit.

The need for surgical repair of early tears of the supraspinatus tendon can be determined by procaine infiltration of the supraspinatus tendon.[31] If the patient can initiate and maintain full abduction with absence of pain, conservative treatment can be used. If the reverse is true, surgical repair should be carried out.

Sympathetic paravertebral block can be used to determine the indication of sympathectomy. It is not infallible, but it is significant. If there is improvement with procaine infiltrations of the sympathetic ganglia, the operative procedure may be considered to be of value. Block can also be used to differentiate Raynaud's disease from other vascular states, since in the former there is no loss of symptomatology from the sympathetic block.

CONCLUSION

I have attempted to present the orthopedic indications for regional and block anesthesia. Many of the approaches described I have used personally. Some have proved of value; others have not. The presentation was made with the purpose of reviewing briefly those aspects of a subject of prime interest to orthopedists.

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REFERENCES

1. Blakiston's New Gould medical dictionary. Ed. 1. Blakiston Co., Philadelphia, 1949, p. 62.
2. Esterline, C. M.: Anesthesia in outline. J. Osteopathy 59:17-18, Sept. 1952.
3. Mandl, F.: Paravertebral block. Grune & Stratton, New York, 1947.
4. Davison, F. R.: Synopsis of materia medica, toxicology, and pharmacology. Ed. 3. C. V. Mosby Co., St. Louis, 1944, pp. 415-417.
5. Boyd, A. M. *et al.*: Intermittent claudication; a clinical study. J. Bone & Joint Surg. 31-B:325-355, Aug. 1949.
6. Moberg, E., and Dhunér, K.-G.: Brachial plexus block with xylocaine. J. Bone & Joint Surg. 33-A:884-888, Oct. 1951.
7. Bick, E. M.: Source book of orthopedics. Ed. 2. Williams & Wilkins Co., Baltimore, 1948, p. 294.
8. Pitkin, G. P.: Conduction anesthesia, edited by J. L. Southworth and R. A. Hingson. J. B. Lippincott Co., Philadelphia, 1946.
9. Judovich, B., and Bates, W.: Pain syndromes; treatment by paravertebral nerve block. Ed. 3. F. A. Davis Co., Philadelphia, 1949.
10. Allen, E. V., Barker, N. W., and Hines, E. A.: Peripheral vascular diseases. W. B. Saunders Co., Philadelphia, 1946.
11. Clouse, W. E.: Treatment of low-back pain with the use of caudal anesthesia. J. Am. Osteop. A. 48:377-378, March 1949.
12. Puderbach, W. J., and Shaftel, H. E.: Prolonged intercostal nerve block in upper abdominal surgery. Journal-Lancet 72:200-204, April 1952.
13. Deaton, W. R., Jr., and Bradshaw, H. H.: A long lasting local anesthetic solution-use in thoracic surgery. Am. Surg. 18:616-620, June 1952.
14. Dittrich, R. J.: Coccygodynia as referred pain. J. Bone & Joint Surg. 33-A:715-718, July 1951.
15. Harris, W.: Neuritis and neuralgia. Oxford University Press, London, 1926.
16. Ergenbright, W. V., and Lowry, F. C.: Procaine injection for relief of pain in the hip. J. Bone & Joint Surg. 31-A:820-821,

for relief of pain in the hip. J. Bone & Joint Surg. 31-A:820-821. Oct. 1949.

17. Casagrande, P. A., Austin, B. P., and Indeck, W.: Denervation of the ankle joint. J. Bone & Joint Surg. 33-A:723-730, July 1951.

18. Sallick, M. A., and Blum, L.: Sensory denervation of the heel for persistent pain following fractures of the calcaneus. J. Bone & Joint Surg. 30-A:209-212, Jan. 1948.

19. Cregan, J. C. F.: Prolonged traumatic arterial spasm after supracondylar fracture of the humerus. J. Bone & Joint Surg. 33-B:363-364, Aug. 1951.

20. Shumacker, H. B.: Sympathetic interruption in cases of trauma and in post-traumatic states. Surg., Gynec. & Obst. 84:739-749, April 15, 1947.

21. Hendrick, D. W., Hawkins, F. B., and Townley, C. O.: Primary arterial injury complicating extremity fractures. J. Bone & Joint Surg. 29:738-744, July 1947.

22. Spear, H. C., and Janes, J. M.: Rupture of the brachial artery accompanying dislocation of the elbow or supracondylar fracture. J. Bone & Joint Surg. 33-A:889-894, Oct. 1951.

23. Cullen, C. H.: Causalgia; diagnosis and treatment. J. Bone & Joint Surg. 30-B:467-477, Aug. 1948.

24. Shumacker, H. B., Jr., Speigel, I. J., and Upjohn, R. H.: Causalgia; the role of sympathetic interruption in treatment. Surg., Gynec. & Obst. 86:76-86, Jan. 1948.

25. Finneran, J. C.: Studies in experimental frostbite; further evaluation of early treatment. Surg., Gynec. & Obst. 90:430-438, April 1950.

26. Shumacker, H. B., Jr.: Sympathectomy in the treatment of frostbite. Surg., Gynec. & Obst. 93:727-734, Dec. 1951.

27. Orr, K. D., and Fainer, D. C.: Cold injuries with emphasis on frostbite. U. S. Armed Forces M. J. 3:95-104, Jan. 1952.

28. Lake, N. C.: Cited by Mandl, F., *op. cit.*, ref. 3.

29. Watson-Jones, R.: Fractures and joint injuries. Ed. 3. William Wood & Co., Baltimore, 1943.

30. Thomson, S. A., and Mahoney, L. J.: Volkmann's ischaemic contracture and its relationship to fracture of the femur. J. Bone & Joint Surg. 33-B:336-347, Aug. 1951.

31. Brown, J. T.: Early assessment of supraspinatus tears; procaine infiltration as a guide to treatment. J. Bone & Joint Surg. 31-B:423-425, Aug. 1949.

Technics and Precautions in Regional and Block Anesthesia

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I take no credit for originality in this presentation. However, all of the technics and procedures presented have been developed through investigation and personal administration as they have been practiced at the Art Centre Hospital by the Department of Anesthesiology. Everything discussed in this paper has been tried and proved, and with a reasonable amount of personal application and study, they can be just as effective in the hands of other physicians.

In general, with block anesthesia we learn by observation, from cadaver injections and anatomic dissections, and from our own mistakes and the mistakes of others.[1] Failures with any block procedure are due to mistakes in injection technic or in preparation of the solution or to overvaluing the anesthetic or our ability. Hence, failure to obtain the desired results should be blamed not on the method, but on our own errors. It is important to find such errors and correct them so that there will be no repetitions. We should always be alert for better local anesthetics, better results, and better methods of approaching the nerves in order to produce better anesthesia.

Since there are many and varied methods of blocking the same nerves, the anesthetist should evaluate the merits of the technics that have been advocated and then familiarize himself with the one that he considers the most plausible. If the anesthetist attempts to use all of the technics without thoroughly understanding any, he will encounter failure. Success will be in direct ratio to his individual dexterity, anatomic knowledge, and understanding of local anesthetic solutions. Failures may be due to lack of interest and training.

The modern anesthesiologist is now able to be of real service to the profession and the various specialties in the control of pain and the performance of diagnostic and therapeutic blocks. It is logical for the anesthesiologist to do this work.

It should be emphasized that no local anesthetic, regardless of how small the volume or how superficial the injection, should be administered without having a barbiturate ready for injection; a gas machine with oxygen, bag, and mask immediately available; and an assistant who can go for aid. Unless these conditions are met, nerve blocks should not be carried out as an office procedure. Our patients always receive an oral barbiturate before therapeutic block, and sometimes full surgical medication is deemed advisable. Careful, frequent, aspiration for blood, air, and spinal fluid and slow injection of small volumes of solution will prevent most serious complications. Metycaine, 1.5 per cent, is our choice for most nerve blocks, although the 2 per cent solution is more satisfactory for brachial plexus and sciatic nerve blocks.

BRACHIAL PLEXUS BLOCK[2-6]

The supraclavicular route is probably the most popular of all methods for blocking the brachial plexus because of its relative simplicity. Since only a small portion of the plexus is exposed to the solution, failures are bound to occur if accurate injection is not made with an adequately strong anesthetic solution containing sufficient vasoconstrictor agents to confine the injection to the immediate area of the nerves long enough to induce anesthesia.

The landmarks may be determined by having the patient in the supine position and the arms at the side. The head should be turned to the opposite side from that where the block is to be done. This places tension on the sternocleidomastoid muscle and causes the cervical vertebrae to be more prominent. The junction of the inner third and the outer two-thirds of the clavicle is determined which is located at a point downward from the imaginary continuation of the external jugular vein. Vision of this may be facilitated by having the patient balloon his cheeks. The subclavian artery passes over the first rib beneath and anterior to the brachial nerves. The plexus lies just lateral to this point (Figs. 1-4).

The primary wheal is raised 1 centimeter above the junction of the inner third and the outer two-thirds of the clavicle, and lateral to the subclavian artery and the external jugular vein. The 22 gauge 2½ inch needle is directed downward medially, and posteriorly

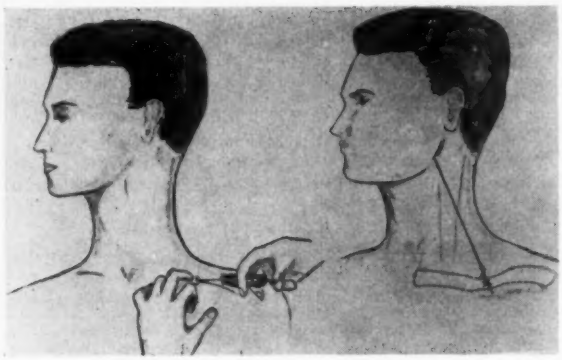


Fig. 1

Fig. 2

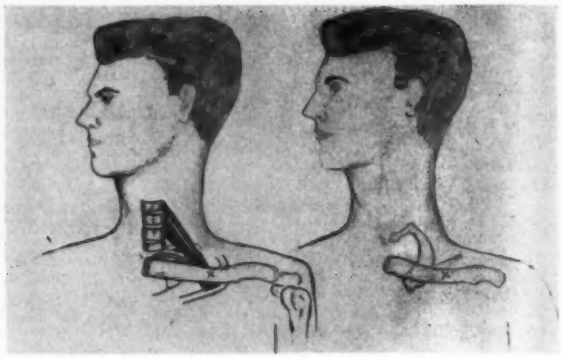


Fig. 3

Fig. 4

Guides in brachial plexus block.

to the first rib, aiming in the direction of the body of the third dorsal vertebra, then withdrawn slightly, and directed toward the subclavian artery and advanced to elicit paresthesia in the arm and hand. If the patient complains of a sharp twinge of pain in the elbow, wrist, or scapula, it is an indication that one of the trunks of the plexus has been penetrated, and should be an incentive to find the main trunk where paresthesia to the fingertips indicates the onset of a successful brachial plexus block.

For the past several years we have supplemented the brachial plexus block by directing the needle from the intial skin wheal up to the transverse processes of the fifth, sixth, and seventh cervical vertebra, depositing 5 cc. of a 2 per cent Metycaine solution at each level. Our failures have been markedly reduced since adding this feature. It is entirely possible to block these nerves and do away with the supraclavicular approach, as the nerves are blocked at their course within the sulcus of the transverse process with greater assurance of satisfactory results.

STELLATE GANGLION—SYMPATHETIC BLOCK

The stellate ganglion is located between the transverse process of the seventh cervical vertebra and the neck of the first rib usually on the anterolateral surface of the body of the seventh cervical vertebra.[5] Blocking causes signs of increased circulation in the upper extremity and the appearance of Horner's syndrome characterized by papillary constriction, ptosis of the eyelid, and anhidrosis and flushing of the face.

The anterolateral approach of the ganglion seems to be the technic with the least chance of complications. The midpoint of the clavicle on the side to be injected is located, and a skin wheal is raised 1 cm. above this point. The transverse process of the sixth cervical vertebra is palpated, and a needle inserted through the wheal and directed downward, medial, and backward to contact the first rib. Then the needle is withdrawn slightly and aimed to the transverse process of the seventh cervical vertebra. By swinging the needle in a more frontal plane, it may be inserted slightly further and make contact with the body of the vertebra. Five to 10 cc. of 1.5 per cent Metycaine are injected.

PARAVERTEBRAL BLOCK

An articulated spine is necessary to observe and appreciate the anatomic location of the bony landmarks and the intervertebral foramina. It will be noticed that in the dorsal region, for example, the intervertebral foramen for the first thoracic nerve is directly opposite the spinous process of the seventh cervical, the second thoracic nerve is opposite the spinous process of the first thoracic nerve and so on in the whole region. In the lumbar region, however, the foramen is directly opposite its own spinous process. In the thoracic region, the foramen is about 1¼ inches medial to the posterior surface of the transverse process of the vertebra. This means that when a needle point contacts the tip of the transverse process, the direction of the needle should be changed slightly so that the tip of the needle passes beneath the transverse process, and after the needle is advanced another inch or slightly more, it should be close to the nerve or the lateral margin of the foramen, and contacting the posterolateral surface of the body of the vertebra.[5]

In making a one-sided block, the patient is placed on the table in the lateral recumbent position with the affected side up. Knees are flexed on the abdomen, and the chin on the chest. For a bilateral block the patient is placed face down, and some degree of flexion is obtained by placing pillows beneath the abdomen. With the patient in this position, spinous processes, transverse processes, and ribs are readily palpable.

A running wheal 1½ inches lateral to the spinous processes is made at the segment to be blocked and carried down to the level of the spinous process just below the segment selected. Individual wheals are not considered advisable because of the increased discomfort to the patient, and the chance that the patient will move and alter the location of the skin wheals. Punctures are made opposite the spinous process which in most instances corresponds to the spinal nerve immediately below.

A 3½ inch 22 gauge blunt-pointed needle is inserted opposite the transverse process of the vertebra above the desired nerve and directed inward and mediad. It is advanced until contact is made with the posterior aspect of the transverse process, then withdrawn very slightly and directed caudalward just enough to pass beneath the transverse process, and then directed inward until it comes in contact with the posterior surface of the body of the vertebra at the outer border of the intervertebral foramen. We have always used 5 cc. of a 2 per cent Metycaine solution for our injections for these larger spinal nerves.

The distance from the posterior surface of the transverse process to the posterior aspect of the body of the vertebra should be noted and marked on the

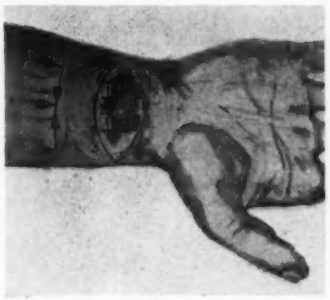


Fig. 5

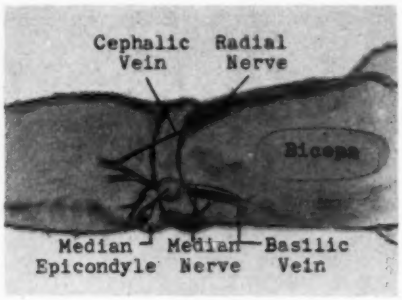


Fig. 6

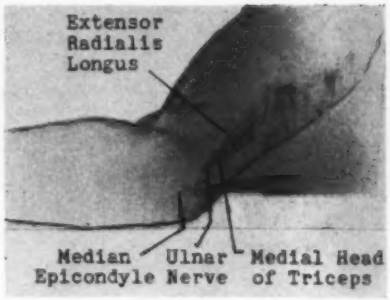


Fig. 7

Fig. 5. Blocking lower third of forearm. Fig. 6. Elbow block. Fig. 7. Ulnar nerve block.

needle so that the depth of subsequent injections for the individual patient is determined and may be done, directly, thereby assuring accurate placing of the needle and saving of time.

Faulty placement and direction of needles may result in several complications. If the angulation of the needle is insufficient or if the rib is used instead of the transverse process for the landmark, the needle may pass to the side of the body of the vertebra, and if injection is made at this point, a sympathetic ganglion will be anesthetized with little effect on the spinal nerve. If the needle is inserted too close to the spinous process and directed into the tissues with the same flat angulation, it contacts the lamina and injection is of no avail. If the angulation is too great, subarachnoid puncture is not at all uncommon.

THORACIC AND LUMBAR SYMPATHETIC BLOCKS

The technic for blocking the thoracic and lumbar sympathetic ganglia does not differ from the technic of somatic block just described. The only difference is that angulation of the needle is changed slightly and the needle is of necessity inserted somewhat deeper to contact the body of the vertebra. When you feel the needle slide off of the body and it is free, 5 to 10 cc. of a 1½ per cent solution of Metycaine are injected. This has the effect of a temporary sympathetic ganglionectomy.

BLOCK OF THE THUMB AND FINGERS

With the patient in the supine position, the dorsum of the hand is turned upward. An intradermal wheal is raised on each side of the midpoint of the metacarpal bone of the digit to be anesthetized, or of all the digits if necessary. A 1 inch 25 gauge needle is advanced toward the palm perpendicularly to the skin, carefully so that the needle does not perforate the skin of the palm. Metycaine, 1.5 per cent, is injected slowly as the needle is advanced. The area from the wheal to the web of the fingers on either side is infiltrated slowly. To avoid gangrene, vasoconstrictor drugs are not added to the anesthetic solution.

GENERAL RULES IN CONDUCTION ANESTHESIA

Before continuing, let us review some of the points to remember when performing regional anesthesia.[6] A skin wheal is not nearly as objectionable to the patient as thrusting a needle deeply into subcutaneous and painful tissues without previous preparation. Discolored solutions of anesthetic drugs should never be used. Vasoconstrictor drugs should not be used in anesthetizing digits or in the presence of diabetes; hypertension; or kidney, cardiovascular, or peripheral vascular diseases.

Needles should be advanced slowly and carefully as they near a bony landmark, with aspiration being performed routinely to prevent vascular injection. At the time of injection, it is imperative that the patient be watched for signs of toxic reaction to the drug. An anesthetic machine should be immediately available whenever regional anesthesia is being performed, and an intravenous barbiturate should be on hand.

An overmedicated patient is just as difficult to control as an undermedicated one. Preanesthetic medication is necessary, and should be administered with accuracy.

A broken needle buried within the tissues is, as a rule, a sign of carelessness and needless brutality on the part of the anesthetist. If needles are inspected before their use, never inserted to the hub, and withdrawn to the subcutaneous tissues when changing direction, this complication will never occur.

Finally, the operative site must be draped. Haste is a poor excuse to give when one is confronted with local infection.

FIELD BLOCK OF THE HAND AT THE WRIST (WRIST BLOCK)

If you are pursuing the field of anesthesiology to any extent, it is often to your advantage to be able to block the arm, forearm, and hand without always relying on the brachial plexus block. In order to anesthetize the entire hand to the wrist, a bracelet injection is performed intradermally and subcutaneously (Fig. 5). The three main nerves can be located by the anesthetist by placing three fingers on the volar surface of the wrist, the middle finger being on the median line of the wrist. The first needle is inserted over the ulnar nerve, and if paresthesia is obtained, the needle is immobilized and 5 cc. of Metycaine, 1.5 per cent, are injected on the nerve. The median nerve is then blocked using the same procedure at the medial point of the wrist. Injecting the two branches of the radial nerve at the wrist is seldom associated with any paresthesia, but by infiltrating from skin to bone in this region with 1.5 per cent Metycaine, failure is infrequent.

Median, ulnar, and radial nerve blocks are done whenever there is a question of a neuroma or the possibility that part of the nerve is pinched in a scar. In the lower extremity blocks of the common peroneal, posterior tibial, saphenous, and sacral nerves are done frequently in patients with severe Buerger's disease, where nerves must be crushed to relieve painful toes, and the surgeon is anxious to limit the crushing to the smallest number of nerves. Until one actually treats patients with pain syndromes, it is hard to believe

that pain relief will last for hours, days, or even years after an anesthesia of ½ hour's duration.

BLOCKING OF NERVES AT ELBOW[2]

One of the great advantages of block anesthesia in orthopedic surgery is that one is able to observe, at the time of operation, whether or not complete function of the parts has been restored. Thus it is that blocking proximal to the affected part is advocated by those using conduction anesthesia.

To determine landmarks for making injections of the median and radial nerves at the elbow, the epicondyles of the humerus are grasped between the thumb and finger with the arm flexed at about 45 degrees, and firm pressure is applied until the humerus is felt. While the thumb and finger are still in position, a line is drawn between them over the skin of the anterior surface of the arm. The tendon of the biceps muscle is then grasped with the thumb and finger over the dermal line and fingernail impressions are made lateral and medial to the margins of the tendon to indicate the site of injection for blocking the median nerve medially and the radial nerve laterally.

While the arm is still flexed, the medial epicondyle is palpated with the thumb, the olecranon with the tip of the long finger, and the groove between the epicondyle and olecranon with the index finger. Firm pressure is made on the skin with the nail of the index finger through the glove to mark the site of injection for the ulnar nerve block. At this level the arm is circumscribed with a subdermal wheal.

A 22 gauge 1½ inch needle is inserted through the subdermal wheal just medial to the biceps tendon to a depth corresponding to the inner surface of the muscle (Fig. 6). If referred pain is felt, it indicates that the median nerve has been penetrated by the needle which should be immobilized and 5 cc. of a 1.5 per cent Metycaine solution injected. If referred pain is not felt by the patient, the needle is withdrawn slightly and inserted so that it penetrates the superficial fascia. Five cc. of the solution is injected and the needle advanced slightly further until another resistance is felt, caused by the deep fascia and the location of the brachialis muscle. The needle is withdrawn slightly and another 5 cc. of anesthetic solution injected.

In blocking the radial nerve, the needle is inserted through the subdermal wheal on the radial side of the biceps muscle and directed toward the lateral margin of the humerus. When the needle reaches a point corresponding to the under surface of the biceps muscle, 5 cc. of the anesthetic solution are injected to anesthetize the lateral antebrachialis nerve, and then the needle is advanced until the point reaches the lateral surface of the humerus. Here 10 cc. of anesthetic solution are deposited. Since the position of the radial nerve at the elbow is variable, a greater amount of anesthetic solution is injected as close to the nerve as possible, and diffusion depended on to produce anesthesia.

The ulnar nerve[7] may be readily blocked at the elbow as it passes posterior to the median epicondyle in the epicondyle-olecranon groove (Fig. 7). The patient's arm is semiflexed, the elbow raised to expose the ulnar notch, and a wheal raised directly over the spot where the notch is palpated on the ulnar side of the olecranon process. Some 10 cc. of 1.5 per cent Metycaine are injected from the skin to bone unless paresthesia is obtained, in which case the agent is injected directly on the nerve trunk. Trauma of the ulnar nerve can usually be avoided if the needle is permitted to travel in the same direction that the nerve traverses.

CONCLUSION

Conduction anesthesia offers to the patient, surgeon, and anesthesiologist certain advantages not possible with general anesthesia. Physiologic blocking of nerves is less taxing to the patient, especially those who present complicating conditions such as cardiac, renal, or pulmonary disease and diabetes. Procedures done on an emergency basis, such as reduction of fracture, may be done more or less immediately after a meal with little danger of aspiration. If fluoroscopy is necessary, regional block eliminates the danger of explosion, respiratory depression, or pharyngeal obstruction.

Regional anesthesia offers the surgeon ideal operating conditions with maximum muscular relaxation. The anesthesiologist will find the technics easy to master and will obtain good results in most cases.

SUMMARY

Well known and commonly practiced anesthetic procedures have been reviewed with emphasis placed on technics that might satisfy an orthopedic surgeon's needs. General precautions have been enumerated in the hope that conduction anesthesia may be made available to greater numbers with greater safety for the suffering patients.

We agree with the writer who said, "The conquest of pain remains after all, the most important task, the main aim, and the crowning—though yet distant—achievement of every medical man, at the bedside, in the operating theatre, in the laboratory, on the battlefields, and wherever else mankind may suffer."[8]

5435 Woodward Ave.

REFERENCES

1. Anderson, R. M., *et al.*: Diagnostic and therapeutic nerve blocks: a two year review. Current Res. in Anesth. & Analg. 29:315-329, Nov.-Dec. 1950.

2. Pitkin's Conduction anesthesia, edited by James L. Southworth and R. A. Hingson. J. B. Lippincott Co., Philadelphia, 1946.

3. Bonica, J. J., and Moore, D. C.: Brachial plexus block anesthesia. Current Res. in Anesth. & Analg. 29:241-253, Sept.-Oct. 1950.

4. Macintosh, R. R. and Mushin, W. W.: Local anesthesia: brachial plexus. Charles C Thomas, Springfield, Ill., 1945.

5. Collins, V. J.: Principles and practice of anesthesiology. Lea & Febiger, Philadelphia, 1952.

6. Adriani, J.: Techniques and procedures of anesthesia. Charles C Thomas, Springfield, Ill., 1947.

7. Lundy, J. S.: Clinical anesthesia. W. B. Saunders Co., Philadelphia, 1942.

8. Medvei, V. C.: The mental and physical effects of pain: Buckston Browne prize essay. E. & S. Livingstone, Edinburgh, 1949.

Conventions and Meetings

Announcements

American Osteopathic Association, Fifty-Seventh Annual Convention, Chicago, July 13-17, inclusive. Program Chairman, Roger E. Bennett, Middletown, Ohio.

American College of Osteopathic Obstetricians and Gynecologists, annual meeting, Hotel Adolphus, Dallas, Tex., February 9-12.

Arizona, annual meeting, El Dorado Lodge, Tucson, May 1-3. Program Chairman, Thomas J. Odom, Tucson.

Arkansas, annual meeting, Albert Pike Hotel, Little Rock, May. Program Chairman, George V. Harris, Fayetteville.

California, annual meeting, Santa Barbara Biltmore, Santa Barbara, May 22-26. Program Chairman, Maxwell R. Brothers, Los Angeles.

Canada, annual meeting, Chateaux Laurier, Ottawa, October 15-17. Program Chairman, Douglas F. Lauder, London, Ontario.

Child Health Conference, Municipal Auditorium, Kansas City, Mo., April.

Florida, annual meeting, Tides Hotel, Reddington Beach, June 11-13. Program Chairman, Edmund T. Flynn, Tallahassee.

Georgia, annual meeting, Hotel Dempsey, Macon, May 1-2. Program Chairman, Albert A. Jelks, Macon.

Illinois, annual meeting, Palmer House, Chicago, May 1-3. Program Chairman, Ransom L. Dinges, Orangeville.

Indiana, annual meeting, French Lick Springs Hotel, French Lick, April 26-28.

Iowa, annual meeting, Hotel Savery, Des Moines, May 17-19. Program Chairman, John Q. A. Mattern, Des Moines.

Kansas, annual meeting, Town House, Kansas City, April 24-29. Program Chairman, S. Riley King, Neodesha.

Maine, annual meeting, Hotel Samoset, Rockland, June 4-6. Professional Education Chairman, Lloyd W. Morey, Millinocket.

Massachusetts, annual meeting, Hotel Somerset, Boston, January 17, 18. Program Chairman, Richard Gifford, Worcester.

Minnesota, annual meeting, Hotel St. Paul, St. Paul, May 1, 2. Program Chairman, Constance Idtse, Minneapolis.

New Jersey, annual meeting, Hotel Traymore, Atlantic City, March 13, 14. Program Chairmen, George W. Northup, Morristown, and Kirk L. Hilliard, Pleasantville.

New York, annual meeting, Hotel Statler, New York City, October 15-17.

North Dakota, annual meeting, Minot, May. Program Chairman, Gordon L. Hamilton, Minot.

Ohio, annual meeting, Neil House, Columbus, May 3-6. Program Chairman, W. Duane Burnard, Columbus.

Oregon and Washington, annual meeting, Multnomah Hotel, Portland, June 9-11. Program Chairman, D. H. Schmidt, Portland.

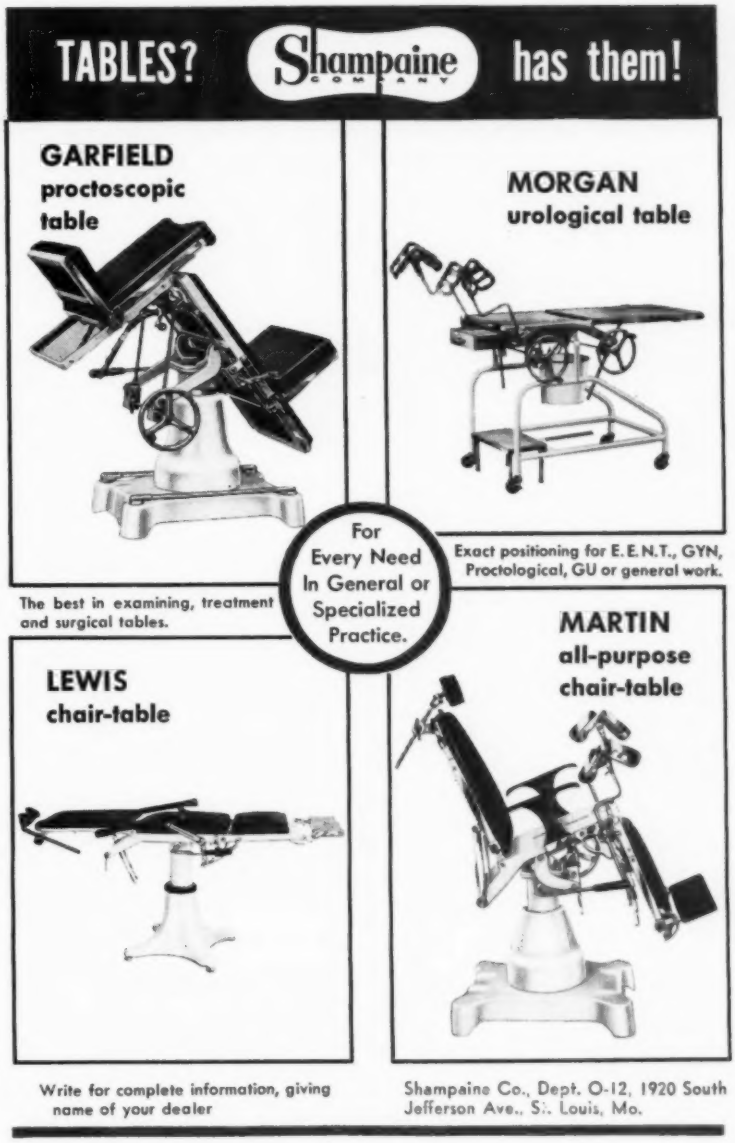
Texas, annual meeting, Gunter Hotel, San Antonio, April 30-May 2. Program Chairman, A. L. Garrison, Port Arthur.

Virginia, annual meeting, Williamsburg, May 22, 23. Program Chairman, Felix D. Swope, Alexandria.

Washington: See Oregon.

West Virginia, annual meeting, Daniel Boone Hotel, Charleston, June 7-9. Program Chairman, Theodore L. Sharpe, Martinsburg.

Wisconsin, annual meeting, Hotel Schroeder, Milwaukee, May 17-19. Program Chairman, Carl V. Blech, Milwaukee.



OFFICIAL AND AFFILIATED ORGANIZATIONS

ARIZONA

Tucson

The officers are: President, Vernon W. Pierce; vice president, Arnold B. Loken; and secretary-treasurer, Homer M. Fredericks, all of Tucson.

The trustees are: Floyd M. Benton, Van H. Fossler, Harry L. Fontenova, and Burton M. Gotshall, all of Tucson.

Committee chairmen are: Public relations, H. V. Halladay and Carlton E.

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ARKANSAS

State Society

"Relation of the Law to the Practice of Osteopathy" was the title of the talk to be given by Clayton H. Morgan, Kansas City, Mo., at the October 18 meeting in Little Rock.

CALIFORNIA

Los Angeles

The officers are: President, Edwin Riedell, Whittier; president-elect, Crichton C. Brigham; and secretary-treasurer, Betsy B. MacCracken, both of Los Angeles.

The trustees are: Robert M. Loveland, H. B. Brigham, Boyd D. Henry, Arthur E. Miller, and George James Towne, all of Los Angeles.

Pomona Valley

A meeting was to be held on September 12 in Ontario.

San Diego

On September 22, Clyde C. Henry, Denver, addressed the meeting. The film, "You Hold the Key," was shown at the same meeting.

San Francisco

The officers are: President, John M. White; vice president, Max W. Bergau; and secretary, Clara K. Morris, all of San Francisco.

The trustees are: J. Vincent Parisi and Russell L. Alley, both of San Francisco, and Walter H. Rogers, San Carlos.

Southeast

Jordon M. Phillips, Downey, will serve as president for 1952-53.

West Los Angeles

Drs. Munish Feinberg, Los Angeles, and H. W. Wagenseller, Beverly Hills, discussed the national convention at the September 9 meeting in Beverly Hills.

CONNECTICUT

State Society

The officers were reported in the August JOURNAL.

Committee chairmen are: Public affairs and public relations, James T. Berry; Osteopathic Progress Fund and program, John P. Goodridge, both of Hartford; constitution and bylaws and vocational guidance, Frank Poglitsch, New Britain; veterans administration board of review, Dr. Berry and Nestor M. Hotchkiss, Norwalk; legislation, Floyd W. Adams, Middletown, Kenneth Adams, Wethersfield, Robert G. Nicholl, Greenwich, and H. Wesley Gorham, Norwalk; professional affairs, Dr. Floyd W. Adams; membership and ethics, Dr. Hotchkiss; and public education on health, Drs. Floyd W. Adams, Kenneth Adams, Nicholl, and Gorham.

FLORIDA

State Society

The officers and trustees were reported in the August JOURNAL.

Committee chairmen are: Convention program, insurance, and general program, Edmund T. Flynn, Tallahassee; public education on health, Ashley C. Lovejoy, Jacksonville; membership, William J. Furey, Jr., Eustis; professional affairs, Hugh T. Kirkpatrick, Pass-a-Grille Beach; ethics and grievance, Eugene J. Edelman, Miami; hospitals, Wardell E. Stanfield, Dade City; exhibits, Calvin J. Houpt, Starke; local convention arragements, George S. Rothmeyer; and veterans affairs, Basil F. Martin, both of St. Petersburg.

IDAHO

Boise Valley

Leland J. Anderson, Boise, discussed correction of the hypermobile sacroiliac joint at the September 18 meeting in Caldwell.

ILLINOIS

Fifth District

Lloyd R. Wood, Oregon, addressed the September 21 meeting.

Sixth District

Speakers at the September 11 meeting in Jacksonville were Lloyd R. Wood, Oregon, Mr. Douglas O. Durkin, Chicago, and Mr. Charles Carnahan, Lexington. Also on the program was the film, "You Hold the Key."

INDIANA

Northeastern

A meeting was to be held in Marion on September 17.

Fourth District

A meeting was held on September 17 in South Bend.

Fifth District

"X-ray for the General Practitioner" was the title of a talk given by F. A. Turfler, Jr., South Bend, at the September 21 meeting.

IOWA

Woodbury County

The officers are: President, Raymond J. Zimmerman; and secretary-treasurer, Raymond S. Farran, both of Sioux City.

KANSAS

Arkansas Valley

Plans for the October 23 meeting included a report of the Denver convention by V. R. Cade, Larned. V. A. Leopold, Garden City, was to present a discussion of vitamins at the November meeting.

Mid-Kansas

Alfred C. Syler, Hutchinson, read a paper on the history of osteopathy prepared by Mr. Lloyd L. Hall, Topeka, at the meeting in Hutchinson on October 8.

Sedgwick County

Meetings were held on October 6 and October 20.

South Central

James B. Donley, Kingman, presented "Some Problems in Operating Small Hospitals" at the October 16 meeting in Arkansas City.

Southeastern

A meeting was to be held in Girard on October 16.

Southwest

A meeting was held in Garden City on September 9.

LOUISIANA

State Society

The program planned for the annual convention in New Orleans October 30 through November 1 included: "Osteopathic Classification of Sciatic Neuralgias," "Shoulder Problems," and "Gastrointestinal Problems and Their Relationship to Postural Errors," Martin C. Beilke, Chicago; "Problems of the Aged" and "Differential Diagnosis of Diseases Commonly Associated with Joint Pain," Howard R. Coats, Tyler, Tex.; and "My Business Is Your Business," Phil R. Russell, Ft. Worth, Tex.

MARYLAND

State Society

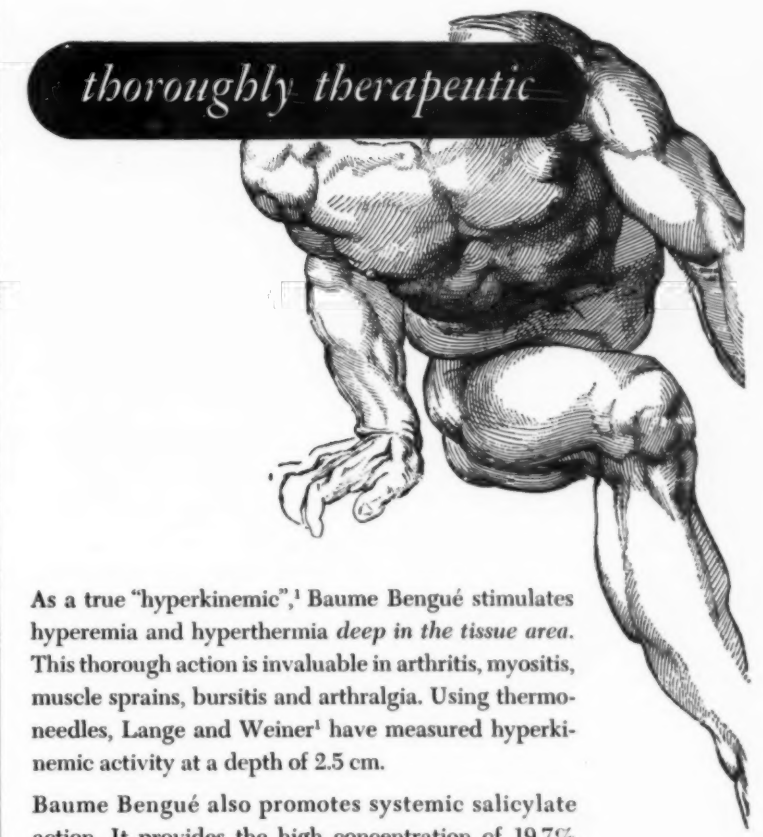
The officers are: President, John K. Rye (re-elected), Bethesda; vice president, Henry Dwight Shellenberger (re-elected); and secretary-treasurer, Ernest R. MacDonald, both of Baltimore.

Committee chairmen are: Legislative and civilian defense, Frank B. Tompkins; public affairs, Dr. Shellenberger; program and ethics, Grace R. McMains, all of Baltimore; professional affairs and nominating, Gifford E. Luke; vocational guidance, Evelyn C. Luke, both of Hagerstown; veterans, Dr. Rye; and public education, Victor F. Brennan, Glen Burnie.

MASSACHUSETTS

Essex County

A meeting for discussion of legislative measures was held in Lynn on October 21.



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1. Lange, K., and Weiner, D.: J. Invest. Dermat. 12:263 (May) 1949.

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MICHIGAN

State Society

The officers are: President, Roy J. Harvey, Midland; president-elect, Daniel W. McKinley, East Detroit; secretary-treasurer, P. Ralph Morehouse (re-elected), Albion; and executive secretary, Mr. Harve Lamont Smith (re-elected), Highland Park.

Trustees are: Campbell A. Ward, Mt. Clemens, O. L. Brooker, Plymouth, Roy S. Young, Harbor Beach, Alan R. Becker, Jackson, H. William Guinand, Evart, and John H. Morrison, Detroit.

Department chairmen are: Convention, bulletin, and professional education, Dr. Ward; internal affairs, Dr. McKinley; public affairs, Dr. Brooker; insurance and industrial and institutional service, Dr. Young; professional development, Dr. Becker; public health, Dr. Guinand; and judiciary and ethics, Dr. Morrison.

Upper Peninsula

The officers are: President, Anne C. Miller, Crystal Falls; and secretary-treasurer, L. C. Shaftoe, St. Ignace.

Western

The officers are: President, William S. King, Muskegon Heights; vice president, Hilden T. Blohm; secretary-treasurer, Cletus L. Dixon; and recording secretary, Duncan Oliphant, all of Muskegon.

Committee chairmen are: Ethics, Sidney L. Michelman; hospitals, A. H. Fuller; statistics, Dr. Dixon; public

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[1]T. Sollmann: Manual of Pharmacology, p-40

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MISSOURI

State Society

The officers are: President, Theodore Corcanges, Raytown; president-elect, M. E. Elliott, Chillicothe; first vice president, C. L. Steidley, St. Joseph; second vice president, Mary King, Springfield; and executive secretary, Mr. Lawrence D. Jones (re-elected), Jefferson City.

Buchanan County

The officers are: President, M. L. Tropp; vice president, A. E. Zachow; and secretary-treasurer, J. G. Jewett, all of St. Joseph.

Clifford L. Steidley, St. Joseph, is trustee.

North Central

The officers are: President, R. W. Matheny, Chillicothe; vice president, Gene Malone, Marceline; and secretary-treasurer, W. H. Payne (re-elected), Mendon.

Joseph E. Prior, Milan, is trustee.

Members of the ethics committee are E. W. Simpson, Milan, and M. E. Elliott, Chillicothe.

Northwest

The officers are: President, C. W. McCartney; and secretary-treasurer, Gilbert H. Kroeger, both of Bethany.

NEW JERSEY

State Society

The meeting scheduled for October 17, 18, was canceled to make room for an emergency meeting in Trenton on October 19.

Bergen-Passaic County

The officers were reported in the July JOURNAL.

Committee chairmen are: Ethics, M. J. Schoonmaker, Paramus; hospitals, P. D. Wilson, Clifton; legislation, J. Raymond McSpirit, Teaneck; and county civilian defense, Oswald B. Deiter, Ridgewood.

Harrison H. Carow, Clifton, is treasurer of the society.

The program of fall meetings included: October, a discussion of selective service presented by James E. Chastney, Hackensack, and Edwin T. Ferren, Camden; November, a talk by a representative of the Bergen County Pharmaceutical Society; and December, "Radiology in General Practice," Robert R. Rosenbaum, New York City.

NEW YORK

State Society

The officers are: President, David J. Bachrach, New York City; vice president, Hewett W. Strever, Rochester; secretary, Robert E. Cole (re-elected), Geneva; and treasurer, Robert R. Ross, Syracuse.

Directors are: Eugene J. Casey, Binghamton; Clarence Edwin Long, Jr., Buffalo; John R. Pike, Albany; William B. Strong (all four re-elected), Brooklyn; and William S. Prescott, Syracuse.

Central

The officers are: President, Stewart P. Smith, Auburn; vice president, Francis J. Beall, Jr.; secretary, Judson W. Johnston; and treasurer, William K. Howes, all of Syracuse.

Committee chairmen are: Hospitals, public health, and clinics, Dr. Beall; industrial and institutional service, Tefft T. Bassett, Syracuse; and public relations, Dr. Johnston.

New York City

The film, "You Hold the Key," was shown at the October 23 meeting.

Westchester

George W. Northup, Morristown, N. J., presented "Lesions of the Knee" at the October 1 meeting in Yonkers.

Plans for the November 6 meeting in Beacon included R. N. MacBain, Chicago, as guest speaker.

OHIO

State Society Auxiliary

The semi-annual meeting was held in conjunction with the state refresher course on October 8, 9. Speakers were Roger E. Bennett, Middletown, and Mrs. W. Duane Burnard, Columbus.

Third District (Cleveland)

The following changes have been made in the roster of officers, trustees, and committee chairmen: C. A. Purdum, Cleveland, replaces Stanley B. Koerner, Cleveland, as secretary-treasurer; Dr. Koerner replaces Stephen J. McCormick, Cleveland, as trustee; Sam H. Sheppard, Bay Village, replaces D. J. Aveni, Cleveland, as chairman of the committee on physician's location; L. Earl Walters, Lakewood, is chairman of the finance

committee; and J. W. Engle, Cleveland, is chairman of the civilian defense committee.

"Development and Maintenance of Osteopathy as a Separate School of Medicine" was the topic discussed by R. N. MacBain, Chicago, at the September 8 meeting.

R. C. McCaughan, Chicago, spoke at the October 7 meeting.

Twelfth District (Springfield)

Speaker at the September 10 meeting was William J. Habeeb, M.D., Springfield. His topic was "Tuberculosis and Its Modern-Day Treatment."

Fourteenth District (Marietta)

A meeting was scheduled for October 2 in Marietta.

Fifteenth District (Cincinnati)

A meeting was held in Cincinnati on September 11.

OKLAHOMA

Kay-Osage

Paul L. Benefield, Ponca City, showed films on surgical treatment of early cancer at the October 9 meeting in Ponca City.

Okmulgee-Okfuskee

The officers are: President, L. W. Huppert, Okmulgee; vice president, L. H. Tannehill, Henryetta; and secretary-treasurer, W. W. Burnett (re-elected), Morris.

South Central

The officers are: President, C. F. Marsey, Jr., Tuttle; and secretary-treasurer, W. E. Poole, Lindsay.

G. E. M. Risberg, Chickasha, is program chairman.

Tulsa

The officers were reported in the October JOURNAL.

The trustees are: Edmund C. Baird, Howard C. Baldwin, and Francis M. Funk, all of Tulsa.

Committee chairmen are: Membership, Herbert R. Stuart; ethics, C. P. Harth; hospitals, Dr. Baldwin; clinics, James W. Halladay; statistics, Crafton D. James; convention program, Joseph A. Smoot; legislation, Paul F. Benien; vocational guidance, Sloan H. Nolen; public health, A. G. Reed; industrial and institutional services, Frank B. Wolfe; public relations, J. Mancil Fish, all of Tulsa; and convention arrangements, Ivan E. Penquite, Sapulpa.

OREGON

Eastern

The officers are: President, O. L. Hutchins, Pendleton; and secretary-treasurer, Kenneth A. Elliott, Hermiston.

G. E. Holt, Pendleton, is program chairman.

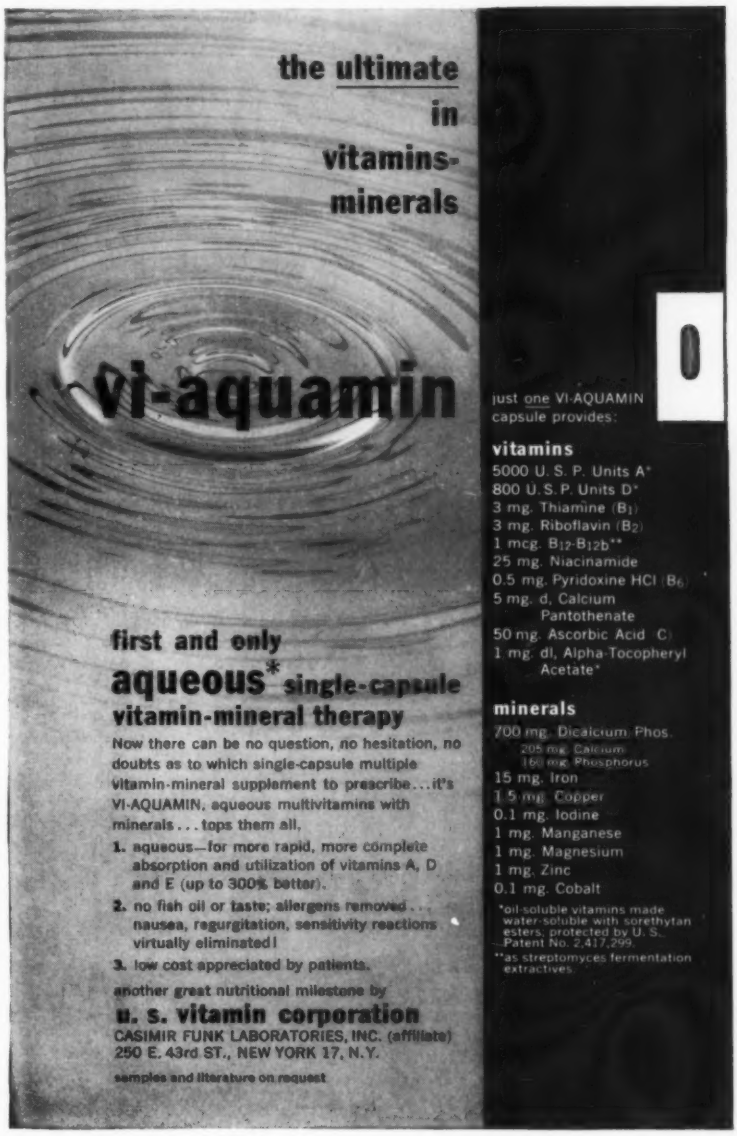
At a meeting on October 7 in Pendleton it was decided to hold future meetings on the first Tuesday of each month.

Southern

The officers are: President, Cedric T. Rambo, Gold Hill; vice president, Blaine B. Pruitt, Grants Pass; and secretary-treasurer, Henry A. Krause, Medford.

The trustees are: W. W. Howard and G. A. Dierdorff, both of Medford.

Mr. Howard I. Bobbitt, Portland, was scheduled to speak at the November 10 meeting.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Willamette Valley

Richard E. Walstrom, Eugene, spoke about the Academy of Applied Osteopathy and demonstrated osteopathic examination of a patient at the September 13 meeting in Eugene.

A meeting was scheduled for November 15.

PENNSYLVANIA

State Society

The officers are: President, John McA. Ulrich, Steelton; president-elect, Robert D. Anderson, Philadelphia; vice president, William H. Behringer, Allentown; secretary-treasurer, Sydney W. Cook (re-elected), Towanda; executive secretary, Mr. George W. Thomas (re-elected), Harrisburg; speaker, Arnold Melnick, Philadelphia; and vice speaker, Clyde S. Saylor, Manoa-Havertown.

SOUTH DAKOTA

State Society

The officers and trustees were reported in the August JOURNAL.

The committee chairmen are: Public relations, J. J. Markine, Elkton; vocational guidance, Laurence S. Betts; displays at fairs, C. Steele Betts, both of Huron; convention program, J. Gordon Betts, Spearfish; membership, Earl W. Hewlett; Osteopathic Progress Fund, F. E. Burkholder, both of Sioux Falls; professional education, Laurel A. Dietrick, Bison; hospitals and veterans affairs, Marion C. Thompson, Watertown; federal-state coordinator and local convention arrangements, G. C. Redfield;

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statistics, Maxine Seablom, both of Rapid City; ethics and censorship, Gladys Evelyn Hale, Pierre; public health and education and civilian defense, M. W. Myers, Hudson; industrial and institutional services, J. Lynn O'Neill, Mitchell; clinics, Carl C. Pascale, Centerville; publicity, H. C. Goekin, Highmore; professional development, H. L. Walters, Waubay; physician recruiting, Andrew S. Glanzer, Menno; and legislation, Lawrence L. Massa, Sturgis, and Dr. Redfield.

TENNESSEE
State Society

The officers are: President, Paul Grayson Smith, Pikeville; president-elect, Lewis D. Elliston, Covington; and secretary-treasurer, L. Dale Chesemore (re-elected), Paris.

TEXAS
District Two

The officers are: President, D. D. Beyer; president-elect, Lester L. Hamilton; vice president, Robert Beyer, all of Ft. Worth; and secretary-treasurer, Robert Lorenz, Dallas.

Committee chairmen are: Public relations, George Luibel; convention program, R. B. Beyer, both of Ft. Worth; and convention arrangements, Dr. Lorenz.

We regret that the list of officers reported in the October JOURNAL was incorrect.

The care and prevention of athletic injuries were discussed at the September 21 meeting in Tyler by Robert E. Morgan, Dallas.

A meeting was scheduled for October 19 in Mt. Pleasant.

District Seven

Meetings were held in Austin on September 2 and September 8 to see films of heart pathology and physical diagnosis of the breast.

District Ten

A meeting was held on September 6.

UTAH
State Society

The officers were reported in the September JOURNAL.

Committee chairmen are: Legislative and legal and hospitals, Earle F. Waters; vocational guidance, Alice E. Houghton; monthly program, Clifford E. Conklin; ethics, B. W. Clayton; state coordinator, L. W. Shafer; annual convention, Ernest O. Bauman, all of Salt Lake City; public and professional welfare, Homer Cate, Tooele; Osteopathic Progress Fund, Iliff C. Jeffery, Provo; and public health, Otto L. Anderson, Richfield.

VERMONT
State Society

The officers are: President, Mason B. Barney (re-elected), Manchester Center; and clerk-treasurer, Howard I. Slocum (re-elected), Middlebury.

The trustees are: Dr. Barney, Roy M. Sherburne, St. Johnsbury, John C. Prendergast, Poultney, and Charles R. Norton, Grand Isle.

Committee chairmen are: Public education and health and federal coordinator, Thomas P. Dunleavy, Barre; vocational guidance, professional development, and Osteopathic Progress Fund, Marian Norton Rice, Windsor; public health, Charles D. Beale, Rutland; industrial and institutions, Benjamin U. Vail, St. Albans; publicity and radio, Roy H. Bartlett, Burlington; statistics, Eva W. Magoon Somerville, St. Johnsbury; hospitals and clinics, Brent W. Ditmore, Bennington; membership, Lester H. Lovell, Brattleboro; veterans, Edwin K. Merkley, Lyndon; medical emergency, Dr. Slocum; and divisional societies, John H. Blackmer, Randolph.

WASHINGTON
State Society

Additions to the list of trustees reported in the September JOURNAL and the list of committee chairmen in the October JOURNAL are: Trustees, R. M. Owen, Mt. Vernon, and H. V. Hoover, Tacoma; committee chairmen, federal and state bureaus, Thomas C. Herren, Kelso; public education on health, Richard S. Koch, Olympia; professional affairs, Scott B. Wisner, Seattle; professional development, Erskine H. Burton, Tacoma; honorary membership, H. L. Chadwick, Spokane; Osteopathic Progress Fund, Charles M. Mitchell, Pasco; and veterans affairs, Harry L. Davis, Walla Walla.

The annual mid-winter seminar is scheduled for December 6 in Seattle.

WISCONSIN
State Society

Martin C. Bielke, Chicago, discussed the treatment of stiff neck, sciatica, and low backache, at the mid-year meeting in Oshkosh on October 7, 8.

State Society Auxiliary

A luncheon meeting was held in Oshkosh on October 8. Plans were begun for the annual meeting in Milwaukee in May.

Madison

Albert M. Kelchner, Sullivan, discussed the emergencies of poliomyelitis and rabies at the September 18 meeting in Madison. A joint meeting with the Milwaukee district was scheduled for November 6 in Milwaukee.

Milwaukee

A meeting was planned for November 6 in conjunction with the Madison district. Bernard S. Schaeffer, M.D., Wood, was to speak on "Medical Management of Strokes."

AUSTRALIA

Australian Osteopathic Association

The officers are: President, Leon van Straten, Melbourne; vice president, Fred Cohen, Manly; secretary, Alice V. Farnum; and treasurer, Alastair B. McGown, both of Melbourne. All of the officers were re-elected.

CANADA

Auxiliary to the Canadian Osteopathic Association

The officers are: President, Mrs. D. G. A. Campbell, Toronto, Ontario; first vice president, Mrs. L. B. Mason, Winnipeg, Manitoba; second vice president, Mrs. Douglas F. Lauder, London, Ontario; secretary, Mrs. A. Reid Johnston; and treasurer, Mrs. M. Paul Christianson, both of Hamilton, Ontario.

SPECIAL AND SPECIALTY GROUPS

ACADEMY OF APPLIED OSTEOPATHY

Puget Sound

The program presented at the meeting in Seattle on October 18 was to include: Resume of FORUM articles on the osteopathic concept, Erskine H. Burton; a review of Magoun's "Cranial Osteopathy," Mary Alice Hoover, both of Tacoma; discussion of Louisa Burns' research on the heart, Arthur B. Cunningham; and a technic demonstration, Martin D. Young, both of Seattle.

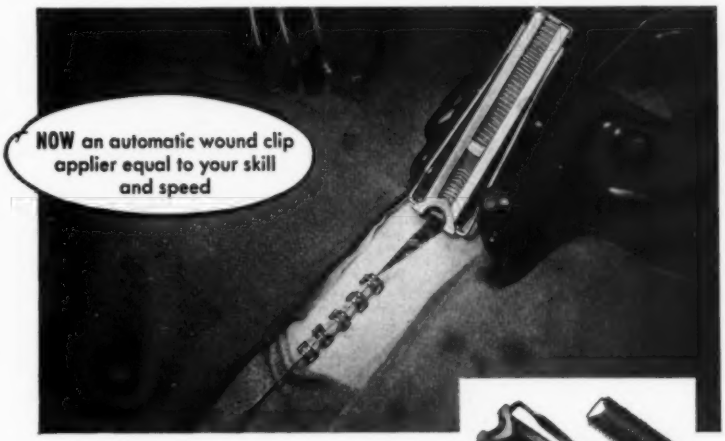
AMERICAN COLLEGE OF OSTEOPATHIC INTERNISTS

The officers are: President, A. L. Pettigrew, Long Beach, Calif.; president-elect, G. A. Whetstine, Wilton Junction, Iowa; and secretary-treasurer, Glennard Lahrson, Oakland, Calif.

The trustees are: Neil R. Kitchen, Highland Park, Mich., Edward W. Murphy, Denver, Charles M. Worrell, Harrisburg, Pa., and S. V. Robuck, Chicago.

AMERICAN OSTEOPATHIC SOCIETY OF HERNIOLOGISTS

The officers are: President, H. A. Fisher, Dearborn, Mich.; vice president, M. F. Bashline, Titusville, Route No. 2, Pa.; and secretary-treasurer, LeRoy W. Lovelidge, Jr. (re-elected), Strasburg, Pa.



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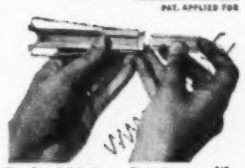

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CORTEX CLUB

(Colorado)

The officers are: President, Claude O. Tyler, Jr.; vice president, Joseph W. Connelly; and secretary-treasurer, Harold I. Magoun, Jr., all of Denver.

ILLINOIS OSTEOPATHIC SOCIETY OF RADIOLOGY

The officers are: President, Martin C. Bielke; vice president, Ray E. Bishop, both of Chicago; and secretary-treasurer, Louis A. Astell, Champaign.

Dr. Bishop is program chairman.

OKLAHOMA OSTEOPATHIC RADIOLOGICAL SOCIETY

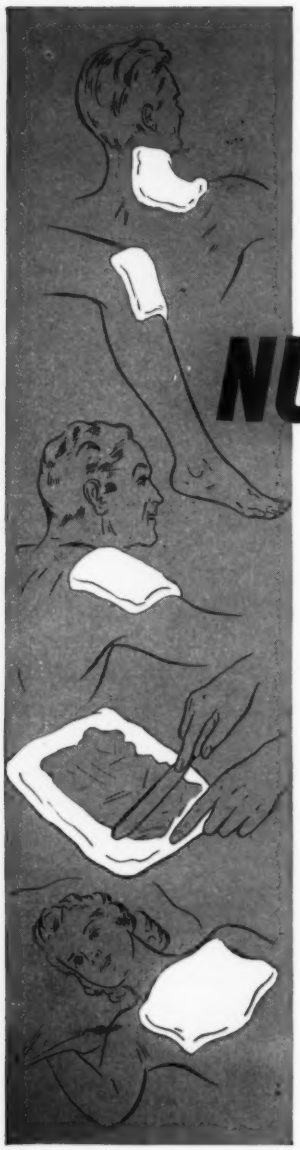
The officers are: President, Richard T. Almquist, Oklahoma City; vice president, Dale P. Bondurant, Cushing; and secretary-treasurer, William V. Accola, Tulsa.

A. G. Reed, Tulsa, was reappointed to serve as program chairman.

C. A. Tedrick, Phoenix, Ariz., spoke about "Chest and Bone Pathologies" at the September 25 meeting in Tulsa.

ROCKY MOUTAIN OSTEOPATHIC CONFERENCE

The complete program announced for the meeting in Colorado Springs November 14-16 included: "Differential Diagnosis of Peripheral Venous Problems," "Recent Advances in Peripheral Venous Surgery," and "Recent Advances in Peripheral Arterial Surgery," W. Donald Baker, Los Angeles, Calif.; "Immediate Repair of Facial Lacerations," "Diagnosis and Medical Management of Thyrotoxicosis," and "Surgical Management of Thyrotoxicosis,"



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Clayton H. Morgan, Kansas City, Mo.; "Developments within the Profession," R. C. McCaughan, Chicago; "Research Report," "Clinical Implications of the Research Report," and "Preventive Medicine of Tomorrow," Irvin M. Korr, Ph.D., Kirksville, Mo.; and "Osteopathic Education in a Changing World," Mr. Morris Thompson, Kirksville, Mo.

State and National Boards

ARIZONA

Basic science examinations March 17, at the University of Arizona, Tucson. Applications must be completed 2 weeks in advance. Address Herbert D. Rhodes, Ph.D., secretary-treasurer, Basic Science Board, University of Arizona, Tucson.

COLORADO

Professional examinations January 14-16, in Denver. Applications must be completed by December 15. Address Miss Beulah H. Hudgens, executive secretary, State Board of Medical Examiners, 831 Republic Bldg., Denver 2.

Basic science examinations in March, Lecture Room, second floor, YMCA Building, 16th and Lincoln Streets, Denver. Applications must be filed in advance. Address Esther B. Starks, D.O., secretary, Basic Science Board, 1459 Ogden St., Denver 18.

Dr. Starks has been re-elected secretary-treasurer of the Board.

CONNECTICUT

Professional examinations March 10. Address H. Wesley Gorham, D.O., secretary, Osteopathic Examining Board, 520 West Avenue, Norwalk.

Basic science examinations February 14, Room 23, Lampson Hall, Yale University, New Haven. Applications must be filed by January 31. Address Miss M. G. Reynolds, executive assistant, State Board of Healing Arts, 11 Whitney Ave., New Haven 10.

DELAWARE

Examinations January 13. Address Joseph McDaniel, M.D., secretary, State Board of Medical Examiners, 229 S. State St., Dover.

FLORIDA

Members of the Board of Osteopathic Medical Examiners who will serve until August 1955 are: Edmund T. Flynn, Tallahassee; James J. McCormick (reappointed), Miami; and R. Philip Coker (reappointed), Panama City.

HAWAII

Examinations January 14. Address Frank O. Gladding, D.O., secretary-treasurer, Board of Osteopathic Examiners, 504 Hawaiian Trust Bldg., Honolulu 13.

ILLINOIS

Examinations in January. Applications must be filed 10 days in advance. Address Mr. Charles F. Kervin, Superintendent of Registration, Illinois Department of Registration and Education, Medical Division, State House, Springfield.

IOWA

Basic science examinations January 13, in Des Moines. Address Ben H. Peterson, Ph.D., secretary, Board of Basic Science Examiners, Coe College, Cedar Rapids.

KANSAS

Examinations February 19-21. Applications must be completed by February 5. Address Forrest H. Kendall, secretary, State Board of Osteopathic Examination and Registration, 420½ Pennsylvania, Holton.

MAINE

Officers of the Board of Osteopathic Examination and Registration are: Chairman, Franklin Randolph, Waldoboro; and secretary-treasurer, George F. Noel, Dover-Foxcroft. Their terms will expire in June, 1953.

Members of the Board and the expiration dates of their terms are: Albert E. Chittenden, Auburn, September, 1956; Dr. Noel, March, 1956; Lloyd W. Morey, Millinocket, July, 1957; Dr. Randolph, January, 1953; and Stanley H. Rowe (reappointed), Gorham, 1957.

MASSACHUSETTS

Examinations March 10. Address George L. Schacht, M.D., secretary, Board of Registration in Medicine, State House, Boston 33.

MICHIGAN

Basic science examinations February 13, 14, at Detroit and Ann Arbor. Applications must be filed by February 1. Address Mrs. Anne Baker, secretary-treasurer, State Board of Examiners in the Basic Sciences, 423 W. Michigan, Lansing.

MINNESOTA

Basic science examinations January 6, 7, 101 Westbrook Hall, University Campus, Minneapolis. Applications must be filed by December 10. Address Mr. Raymond Bieter, secretary, Board of Examiners in the Basic Sciences, 105 Millard Hall, University of Minnesota, Minneapolis 14.

MONTANA

Examinations March 3. Address Asa Willard, D.O., secretary, Board of Osteopathic Examiners, Wilma Bldg., Missoula.

Clem L. Shafer, Helena, has been reappointed to serve as a member of the Board until May 18, 1956.

NEBRASKA

Basic science examinations January 13, 14, at the University College of Medicine, Omaha. Applications must be filed 15 days in advance. Address Mr. Husted K. Watson, director, Bureau of Examining Boards, Dept. of Health, Lincoln 9.

NEVADA

Examinations January 13. Address Walter J. Walker, D.O., secretary-treasurer, Board of Osteopathic Examiners, 210 W. Second St., Reno.

Basic science examinations January 6, University of Nevada, Reno. Applications must be completed by December 24. Address Dr. Frank Richardson, secretary-treasurer, Board of Examiners in the Basic Sciences, University of Nevada, Reno.

NEW HAMPSHIRE

Examinations March 12, 13, at Concord. Address John S. Wheeler, M.D., secretary, Board of Registration in Medicine, State House, Concord.

NEW JERSEY

Edwin T. Ferren, Camden, has been appointed to serve as a member of the Board of Medical Examiners until January 20, 1953.

NEW MEXICO

Walter E. White, Clovis, has been appointed to serve as a member of the Board of Osteopathic Examination and Registration until April, 1956.

NEW YORK

Examinations January 27-30, in New York, Albany, Buffalo, and Syracuse. Applications must be filed 30 days in advance. Address John W. Paige, M.D., chief, Bureau of Professional Examinations and Registration, 23 S. Pearl St., Albany.

NORTH CAROLINA

Neva A. McCoy, Concord, has been appointed to serve as a member of the Board of Osteopathic Examination and Registration until May, 1957.

NORTH DAKOTA

Examinations in January. Address Gordon L. Hamilton, D.O., secretary-treasurer, Board of Osteopathic Examiners, Ringo Bldg., 119 S. Main St., Minot.

John O. Thoreson, Bismarck, has been reappointed to serve as a member of the Board until June, 1955.

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OREGON

Examinations January 5, 6, 609 Failing Bldg., Portland. Applications must be completed by December 12. The Board will use the objective type of examination rather than the essay type. Address Mr. Howard I. Bobbitt, executive secretary, Board of Medical Examiners, 609 Failing Bldg., Portland, 4.

PUERTO RICO

Examinations in March at San Juan. Applications must be filed 3 months in advance. Address Mr. Luis Cueto Coll, secretary, Board of Medical Examiners, Box 3717, Santurce.

RHODE ISLAND

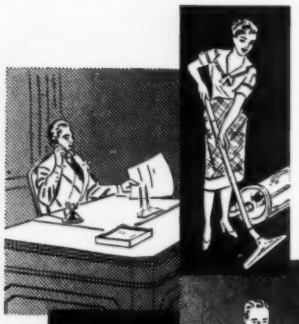
Basic science examinations in February. Applications must be filed in advance. Address Mr. Thomas B. Casey, Administrator of Professional Regulations, 366 State Office Bldg., Providence.

SOUTH CAROLINA

Nancy Hoselton and M. V. Huggins, both of Concord, have been reappointed to serve as members of the Board of Osteopathic Examiners. Dr. Hoselton will serve until May, 1956, and Dr. Huggins will serve until May, 1953.

TENNESSEE

Examinations are held on the second Wednesday in February and the last Wednesday in July at Nashville. Address M. E. Coy, D.O., secretary, Board of Examination and Registration for Osteopathic Physicians, 1226 Highland Ave., Jackson.



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VERMONT

Examinations January 21-23, State House, Montpelier. Applications must be completed by January 10. Address Charles D. Beale, D.O., secretary, Board of Osteopathic Examination and Registration, Mead Bldg., Rutl nd.

WASHINGTON

Professional and basic science examinations in January. Applications for basic science examinations must be filed 30 days in advance. For both address Mr. Robert L. Smith, director, State Department of Licenses, Professional Division, Olympia.

WISCONSIN

Professional examinations January 13-15, Hotel Loraine, Madison. Applications must be filed by December 30. Address Alvin G. Koehler, M.D., secretary, State Board of Medical Examiners, 46 Washington Blvd., Oshkosh.

WYOMING

Examinations February 3, in Cheyenne. Address Franklin D. Yoder, M.D., secretary, State Board of Medical Examiners, State Capitol, Cheyenne.

REREGISTRATION OF OSTEOPATHIC LICENSES

During December—District of Columbia, $2.00. Address Daniel L. Seckinger, M.D., secretary-treasurer, Board of Examiners in Medicine and Osteopathy, Commission on Licensure, Room 4130, Municipal Building, Washington, D. C.

January—Alberta. No registration. Pay $10.00 a year membership in College of Physicians and Surgeons, Alberta.

During January—Connecticut, $2.00. Address H. Wesley Gorham, D.O., secretary, Osteopathic Examining Board, 520 West Ave., Norwalk.

During January—Minnesota, $2.00. Address Wallace F. Kreighbaum, D.O., secretary, State Board of Osteopathic Examiners, 2933 Hennepin Ave., S., Minneapolis 8.

During January — Wisconsin, $3.00. Address Alvin G. Koehler, M.D., secretary, Board of Medical Examiners, 46 Washington Blvd., Oshkosh.

January 1—Arizona, not more than $10.00. Address Russell Peterson, D.O., secretary, Osteopathic Board of Registration and Examination, 2747 E. McDowell Rd., Phoenix.

January 1—California, $20.00 for residents and nonresidents. Address Glen D. Cayler, D.O., secretary-treasurer, Board of Osteopathic Examiners, 301 Forum Bldg., Sacramento.

January 1—Florida, $5.00. Address J. A. Camara, D.O., secretary-treasurer, Board of Osteopathic Medical Examiners, 209 Masonic Temple Bldg., Jacksonville.

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January 1—Maine, $2.00. Address George F. Noel, D.O., secretary-treasurer, Board of Osteopathic Examination and Registration, Monument Square, Dover-Foxcroft.

January 1—Manitoba, $5.00. Address W. Kurth, D.O., secretary, Board of Osteopathic Physicians, 248 Moorgate Blvd., Deer Lodge, Winnipeg.

January 1—New York, $5.00 biennially. Address John W. Paige, M.D., chief, Bureau of Professional Examinations and Registration, 23 S. Pearl St., Albany.

January 1—Ontario, $10.00. Address Mr. John C. Beer, secretary-treasurer, Board of Regents; Drugless Practitioners Act, 57 Bloor St., W. Toronto 5.

January 1—Oregon, $10.00. Address Mr. Howard I. Bobbitt, executive secretary, Board of Medical Examiners, 609 Failing Bldg., Portland 4.

January 1—Saskatchewan, $30.00. Address Doris May Tanner, D.O., secretary, Board of Osteopathic Physicians, 405 Sterling Trust Bldg., Regina.

January 1—Texas, $2.00. Address M. H. Crabb, M.D., secretary-treasurer, Board of Medical Examiners, 1714 Medical Arts Bldg., Ft. Worth.

January 1—Utah, $3.00. Address Mr. Frank E. Lees, assistant director, Department of Registration, 324 State Capitol, Salt Lake City.

January 31—British Columbia, amount of fee set at Annual Meeting of Council of College of Physicians and Surgeons of British Columbia (1946, $28.00). Address E. Murray Blair, M.D., registrar, Council College of Physicians and Surgeons, 1665 W. Broadway, Vancouver, B. C.

Before February 1—Vermont, $3.00 for residents; $2.00 for nonresidents. Address Charles D. Beale, D.O., secretary, Board of Osteopathic Examination and Registration, Mead Bldg., Rutland.

Before March 1—Colorado, $2.00 if legal resident of Colorado; $10.00 if not legal resident of Colorado. Address Miss Beulah H. Hudgens, executive secretary, Board of Medical Examiners, 831 Republic Bldg., Denver.

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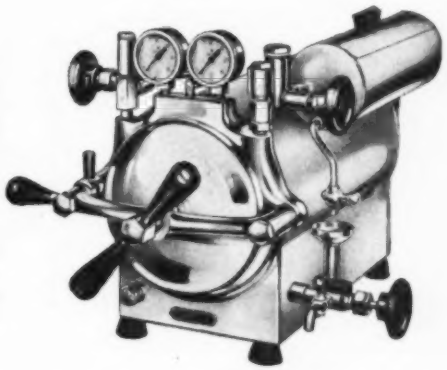

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Applications must be filed with the secretary of the Board not less than 30 days prior to the examination dates. Address Paul van B. Allen, D.O., secretary, 1512 N. Delaware Street, Indianapolis 2, Indiana.

NATIONAL BUREAU OF STANDARDS ESTABLISHES PROGRAM OF RADON MEASUREMENT AND CONTROL*

To protect the health and safety of personnel engaged in work involving the handling or processing of radium the National Bureau of Standards maintains careful check, throughout the United States, over the quantity of radium ingested by such personnel and over the quantity of radon present in their working areas. The breath of these workers

*Reprinted from *Occupational Health*, November, 1952.

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or the air in the work room is sampled periodically and is measured for its content of radon, the gas produced by radioactive disintegration of radium. This analysis reveals the amount of radioactivity present and provides the basis for the establishment and maintenance of proper safety measures.

The radon testing program was inaugurated in 1941 when the Surgeon General's office requested the Bureau to establish a program designed to prevent injury or death to personnel working with radium. Using highly specialized electronic equipment and ionization chambers that are continuously monitored by the national standards of radioactivity, the Radon Testing Laboratory has developed a method for measuring radon of very low concentration to a high degree of precision. As a result of the cooperative efforts of the Bureau and the officials and hygienists responsible for the protection of the workers from unsealed radium, deaths and injury from radium poisoning such as occurred in the years following the First World War are now being prevented.

Radon determination makes possible the rapid evaluation of the radon content of air in work and storage rooms, radium processing plants, and mine areas. Radon measurements can thus be used to determine whether the maximum permissible dosage limits are being exceeded or whether sufficient ventilation has been provided. In the case of personnel engaged in the handling or processing of radium, radon measurements of breath samples give an indication of the amount of radium ingested either by inhaling airborne particles or transfer of contamination from the hands to the mouth.

Samples for radon determination are submitted periodically by both private and government agencies. The majority of the government agencies have a health physics division within the agency which specifies the maximum permissible limits[1] of radon and investigates the cause of excessive values when such are indicated by the Bureau's reports. For private organizations, the State health department performs this function. Still other large agencies maintain their own health officer or hygienist. Other installations, such as uranium mines, are under surveillance of the Public Health Service of the Federal Security Agency, working in conjunction with certain State health departments.

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1. Hollender, A. R. Office Treatment of Nose, Throat and Ear. 1943. Year Book Publishers, Chicago. p. 200. 2. Martin, G. J. Am. Jl. Physiol. 130:574. 1940. 3. Copley, A. L. and Larich, J. J. Am. Jl. Med. Sci. 204:665. 1942.

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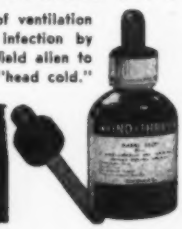

equipment must always be kept ready for emergencies, such as accidental spilling of radium or the failure of automatic devices for remote control of measuring or hospital equipment. When such accidents occur, samples of room air as well as expired air samples from personnel exposed to the damaged material are collected and submitted to the Bureau for radon determination. Samples taken soon after the accident give an indication of the extent of the danger, while follow-up samples show the efficiency of whatever decontamination procedures have been used and possibility of permanent injury to employees.

For the sake of complete uniformity, sampling flasks for the collection of all air samples are supplied by the National Bureau of Standards. These pyrex flasks, of 2-liter capacity, are evacuated in the laboratory and sent out, upon request, packed with foam rubber in aluminum shipping containers. After being filled with room or mine air or exhaled air, the flasks are returned for determination of radon content. Workroom air samples are collected by opening the stopcocks on the evacuated flask so that the air flows in through a filter. Breath samples are obtained by transferring exhaled air from previously inflated balloons into the evacuated flask through its stopcock.

The samples, especially those of breath, must be sent to the Bureau immediately because measurements on weak radioactive air (such as the average breath sample) must be made within 10 days of the collection date. Radon has a half life of slightly less than 4 days, and detection is very difficult after more than 10 days have passed.

RADIUM ASSAYS BY THE RADON METHOD

More recently the National Bureau of Standards has expanded the scope of its radon program to include the determination of radon content of water samples from lakes, rivers, and wells, particularly those subjected to naturally occurring radioactive deposits or waste from radium processing plants. Tests are also made of the air from mines where uranium and its associated products are being extracted or where there is a possibility that these substances may occur in conjunction with other mined ores.

The amount of elemental radium present in any ore, rock, or other solid material in amounts as low as 10^{-12} gram per gram of material may be measured by the NBS radon method, which can distinguish radium from other radioactive elements such as mesothorium or uranium. This distinction is possible because other gaseous alpha emitters such as thoron (which might be present) are relatively short-lived as compared to radon. Thus, if several hours are allowed for their decay after transfer to the chambers, only those counts due to radon and its decay products, plus those of the chamber background, will be recorded.

The radon method is most useful when the radium content of the samples is less than 10^{-7} gram per gram of solid material or per liter of liquid. When the concentration of radium in samples is as low as this, ordinary methods of assaying are not sensitive enough, and assaying involves the national standards of measurement as well as rigorous control over the analysis process if adequate precision in the results is to be obtained.

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Jealous, Sargent, from 186 Main St., to 9 Cross St., Saco, Maine.
Johnson, Melvin E., KC '52; Osteopathic Hospital of Kansas City, 926 E. 11th St., Kansas City 6E, Mo.
Jones, William W., KCOS '52; Laddonia, Mo.
Juni, Raymond B., from 3323 Ingersoll Ave., to 932 59th St., Des Moines 12, Iowa
Kahn, Hyman, from Kansas City, Mo., to The Henry Hudson Hotel, 353 W. 57th St., New York 22, N. Y.
Kanoff, Hymen, PCO '52; Lancaster Osteopathic Hospital, Lancaster, Pa.
Kearney, Jean L., from Sparta, Wis., to 435 E. Lincoln, Milwaukee, Wis.
Kennedy, John, from Glendale, Calif., to 6206 Honolulu, La Crescenta, Calif.
Kettler, Carl, from 1319 19th St., to Box 909, Washington 4, D. C.
Killgore, Z. W., from Clio, Mich., to 103 Grove Ave., Michigan Center, Mich.
Kirk, James R., KCOS '52; Amarillo Osteopathic Hospital, 801 W. Tenth St., Amarillo, Texas
Kirk, Norbert Lane, KC '52; Muskegon Osteopathic Hospital, Third & Webster Sts., Muskegon, Mich.
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Koffman, Joseph F., from 7019 N. Saginaw St., to 7002 N. Saginaw St., Flint 5, Mich.
Kraimik, R. J., from Lansing, Mich., to Clare General Hospital, Clare, Mich.
Krohn, Ned D., KC 52; Muskegon Osteopathic Hospital, Third & Webster Sts., Muskegon, Mich.
Kubala, Stephen F., KC '52; Clinic Hospital, Nowata, Okla.
Kunkle, Joseph E., from Indiana, Pa., to 206-07 Reynolds Bldg., E. Market St., Kittanning, Pa.
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Lamb, Thomas, KC '52; Osteopathic Hospital of Kansas City, 926 E. 11th St., Kansas City 6E, Mo.
Larson, Robert W., from Mount Clemens, Mich., to 209 Sac City State Bank Bldg., Sac City, Iowa
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Lind, L. R., from 4803 Griggs Road, to 4576 Griggs Road, Houston 4, Texas
Lindsey, Clarence W., KCOS '52; 109 N. Jefferson St., Vandalia, Mo.
Link, Jack P., from Springfield, Ohio, to 755 N. E. Eighth Ave., Hialeah, Fla. (Change of name from Linkenhoker)
Lloyd, William J., PCO '52; Allentown Osteopathic Hospital, 1746 Hamilton St., Allentown, Pa.
Loeb, Reuben B., PCO '52; 8037 Frankford Ave., Philadelphia 36, Pa.
Logue, Francis M., from Los Angeles, Calif., to Parkview Hospital, 1920 Parkwood Ave., Toledo 2, Ohio
Loser, M. Lee, PCO '52; Osteopathic Hospital of Philadelphia, 48th & Spruce Sts., Philadelphia 39, Pa.
Lovelidge, LeRoy W., Jr., from Strasburg, Pa., to 201 E. Orange St., Lancaster, Pa.
Lupo, Stephen Frank, KC '52; West Side Osteopathic Hospital, 1253 W. Market St., York, Pa.
Lypps, R. A., from Greenville, Mich., to Route 2, Stanton, Mich.
Lyster, Sturgis C., KC '52; Lakeside Hospital, 2801 Flora Ave., Kansas City 3, Mo.
MacAdams, Emma L., from 1170 Madison Ave., S. E., to 1174 Madison Ave., S. E., Grand Rapids 7, Mich.
MacKenzie, William P., from 23493 Mack Ave., to Colony Clinic, 23001 Mack Ave., St. Claire Shores, Mich.
Mahaffey, Gene F., KC '52; Rocky Mountain Osteopathic Hospital, 4701 E. Ninth Ave., Denver 20, Colo.
Mancuso, Louis G., from 5003 Ross Ave., to 147-A S. E. Shopping Village, Dallas 19, Texas
Marcus, Max, from 818 Walnut St., to 117 N. Eighth St., Allentown, Pa.
Martin, Frederick A., from Creston, Iowa, to McCormick Osteopathic Hospital and Clinic, 309 Grand Ave., Moberly, Mo.
Martin, Hirschel A., DMS '52; Green Cross General Hospital, 15 Broad St., Akron 5, Ohio
Mauldin, Arthur A., KCOS '52; Oklahoma Osteopathic Hospital, 744 W. Ninth St., Tulsa 5, Okla.
Matlin, Milton, from Burbank, Calif., to 5303 Tilden Ave., Brooklyn 3, N. Y.
McCann, Franklin P., from 108 Jefferson St., to Route 2, Box 785, Peoria, Ariz.
McCarty, William C., from 5511 S. Kenwood Ave., to 9136 Aberdeen, Chicago 20, Ill.
McClimans, Robert A., from Denison, Texas, to 6002 Washington St., Houston 7, Texas
Miley, James M., Jr., from St. Joseph, Mich., to 712 N. Michigan St., Plymouth, Ind.
Miller, Jay R., from 822 W. Locust St., to 204 Carlisle Ave., York, Pa.
Minniti, Joseph C., PCO '52; 54 Capitol St., Paulsboro, N. J.
Mischenko, Nicholas J., from Emlenton, Pa., to Bashline-Rossman Osteopathic Hospital & Clinic, Corner Pine & Center Sts., Grove City, Pa.
Mitchell, Thomas J., KC '52; West Side Osteopathic Hospital, 1253 W. Market St., York, Pa.
Mitnick, Marvin L., from Maywood, Calif., to 4513 Compton Blvd., Compton, Calif.
Modders, Robert E., KCOS '52; 1514 Bookness St., Midland, Mich.
Monaghan, William J., KC '52; Osteopathic Hospital of Kansas City, 926 E. 11th St., Kansas City 6E, Mo.
Morgan, Alan W., KCOS '52; Detroit Osteopathic Hospital, 12523 Third Ave., Detroit 3, Mich.
Moss, Victor I., from Philadelphia, Pa., to 3431 Longfellow Ave., Detroit 6, Mich.
Mount, Roger H., from 616 Helena St., to 216 E. Central St., Siloam Springs, Ark.
Mrstik, Lloyd L., KCOS '52; 3894 Burns, Detroit 14, Mich.
Mulford, William B., from Kirksville, Mo., to 405 S. Center St., Bremen, Ind.
Munroe, Paris N., from 14317 Grand River Ave., to 14315 Grand River Ave., Detroit 27, Mich.
Mullin, Dorothy Vernon, from Jewell, Iowa, to Ellsworth, Iowa
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Orth, H. C., Jr., from Lewistown, Pa., to 16197 Fairfield Ave., Detroit 21, Mich.

Owen, Richard Edgar, KCOS '52; Bridges Bldg., Camden, Tenn.

Page, Billy J., PCO '52; 16805 Patton Ave., Detroit 19, Mich.

Palmer, Benjamin E., from Barryton, Mich., to Fairview, Mich.

Palmer, Lawson F., Jr., PCO '51; 428 18th St., Denver 2, Colo.

Paltin, Samuel J., from Los Angeles, Calif., to 17223 S. Crenshaw Blvd., Torrance, Calif.

Pfister, Kurt William, PCO '52; Northwest Hospital, 1060 N. W. 79th St., Miami 38, Fla.

Plath, Elgar L., from 512-13 Insurance Bldg., to 1327 Williamson St., Madison 4, Wis.

Pratt, Lloyd P., KC '52; 606 Euclid Place, Kansas City 1, Mo.

Price, William R., from 923 Alderman St., to 322 N. Bridge St., Belding, Mich.

Randall, Edward J., from Cleveland, Ohio, to 3200 Derry St., Paxtang, Pa. (Change of name from Zarnoski, Jr.)

Reagan, Walter N., CCO '52; Doctors Hospital, 1087 Dennison Ave., Columbus 1, Ohio

Rennoe, Edgar J., from Columbus, Ohio, to Detroit Osteopathic Hospital, 12523 Third Ave., Detroit 3, Mich.

Repasky, Joseph R., KCOS '52; 1281 Burkhardt Ave., Akron 1, Ohio

Rhoades, Joe W., KCOS '52; 2715 Hemphill St., Fort Worth 4, Texas

Rice, Aris L., from Sacramento, Calif., to 1412 S. Pacific Coast Highwayy, Redondo Beach, Calif.

Rice, Owen A., from 756 Burton St., S.E., to 744 Burton St., S.E., Grand Rapids 7, Mich.

Rinne, Toine M., from Chicago, Ill., to 402 Second Ave., Ottawa, Ill.

Roberts, Carolyn Hoch, from 1149 S. Buckner Blvd., to 1707 S. Buckner Blvd., Dallas 18, Texas

Robinson, George S., from 80 Broad St., to 41 Lewis St., Lynn, Mass.

Roddy Robert C., DMS '52; Stevens Park Osteopathic Hospital, 1141 N. Hampton Road, Dallas 11, Texas

Rodnick, Norman L., from 521 S. Western Ave., to 8622 Santa Monica Blvd., Los Angeles 46, Calif.

Rooney, Edward M., KC '52; Bay View Hospital, 23200 Lake Road, Bay Village, Ohio

Rose, Donald E., PCO '52; Bashline-Rossman Osteopathic Hospital & Clinic, Cor. Pine & Center Sts., Grove City, Pa.

Rothmeyer, George S., from 525 Florida Natl. Bank Bldg., to 705 Fifth Ave., N., St. Petersburg 5, Fla.

Rudin, Norman, PCO '52; 506 S. 41st St., Philadelphia 4, Pa.

Russell, Dimon M., from Carthage, Mo., to Laws Bldg., 312 Wall St., Joplin, Mo.

Rutter, Paul T., from Linz, Austria, to 700 12th Ave., N., St. Petersburg 7, Fla.

Sanders, H. W., from Snyder, Texas, to 6006 Lyons St., Houston 20, Texas

Schrader, Alfred L., KCOS '52; Lakeside Hospital, 2801 Flora Ave., Kansas City 3, Mo.

Schultz, Charles D., from 1141 Brady St., to 1805 Main St., Davenport, Iowa

Scott, Winfield M., from 1100 N. Mission Road, to 4952 E. Sixth St., Los Angeles 22, Calif.

Sechrist, Ward C., from Los Angeles, Calif., to 11615 Long Beach Blvd., Lynwood, Calif.

Selnick, William B., PCO '52; Bay View Hospital, 23200 Lake Road, Bay Village, Ohio

Serra, Harold A., from 12523 Third Ave., to 15945 W. Seven Mile Road, Detroit 35, Mich.

Shaw, Luther U., from Twentynine Palms, Calif., to 11852 Magnolia Blvd., North Hollywood, Calif.

Shedlock, Arthur G., from Fort Worth, Texas, to Box 241, Excelsior Springs, Mo.

Shelp, Allan Curtis, from Saginaw, Mich., to 811 W. Huron St., Vassar, Mich.

Sheppard, Stephen A., from Fairview, Ohio, to 22204 Lorain Road, Fairview Park 26, Ohio

Shields, Robert J., KCOS '52; Port Acres, Texas

Simonian, Simon, KCOS '52; Jimos Bldg., Greenville, Mich.

Smith, Donald L., KC '52; Osteopathic Hospital of Kansas City, 926 E. 11th St., Kansas City 6E, Mo.

Snader, Robert S., PCO '52; Lancaster Osteopathic Hospital, Lancaster, Pa.

Snow, William M., KC '52; Fort Worth Osteopathic Hospital, Inc., 3705 Camp Bowie, Blvd., Fort Worth 7, Texas

Snyder, Sidney, PCO '52; 2502 N. Stanley St., Philadelphia 32, Pa.

Sokol, Sylvan, from Philadelphia, Pa., to 1 Summer Lane, Levittown, Pa.

Steffan, James E., KCOS '52; 609 W. High St., Jefferson City, Mo.

Stillman, Clara Judson, from Pasadena, Calif., to 842 Sacramento, Altadena, Calif.

Stohr, Everett E., from Mountain View, Okla., to 110 N. Main St., Belen, N. Mex.

Streeter, Franz Milton, KCOS '52; Hillside Osteopathic Hospital, 1940 El Cajon Blvd., San Diego 3, Calif.

Streicker, Walter M., from 1 Hanson Place, to 7 Plaza St., Brooklyn 17, N. Y.

Stuart, Ralph W., KC '52; Oklahoma Osteopathic Hospital, 744 W. Ninth St., Tulsa 5, Okla.

Sutherland, Ralph M., from 9658 E. Garvey Blvd., to The Schwartz Clinical Group, 424 S. Tyler Ave., El Monte, Calif.

Sutton, George W., from Crane Building, to 511 E. Washington, Mount Pleasant, Iowa

Swoger, Robert J., from Canton, Ohio, to 217 N. Vine St., Orville, Ohio

Taaffe, William G., KCOS '52; 820 Sherman Ave., South Bend 16, Ind.

Teplitz, Raymond L., from Burbank, Calif., to 7116 Melrose Ave., Los Angeles 46, Calif.

Tessa, Clement D., from Des Moines, Iowa, to 449 S. Cloverdale Ave., Los Angeles 36, Calif.

Thompson, C. D., from 606 New Black Bldg., to 224 N. Eighth St., Fargo, N. Dak.

Thompson, Lauran E., KC '52; Phillips Petroleum Co., B-55 Adams Bldg., Bartlesville, Okla.

Thorington, Ed Chilton, KCOS '52; 903 S. Davis, Kirksville, Mo.

Tilley, R. McFarlane, from Brooklyn, N. Y., to 1400 E. Patterson St., Kirksville, Mo.

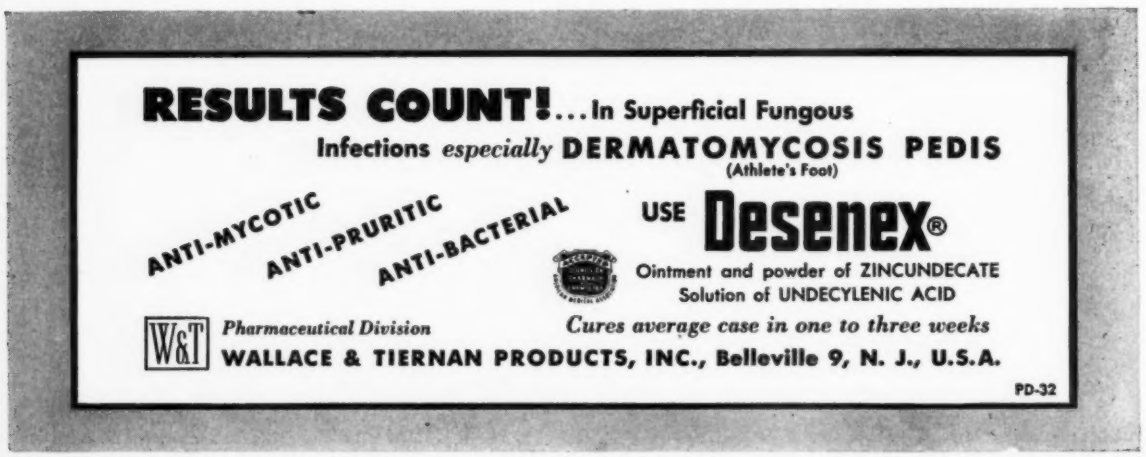
Trepel, Martin L., PCO '52; 1341 S. Orange Drive, Los Angeles 19, Calif.

Treseler, Donald K., from 8511 15th Ave., N.E., to 1020 Seaboard Bldg., Seattle 1, Wash.

Tull, Thomas R., from 109 W. First St., to 222 E. Sixth St., Royal Oak, Mich.

Unruh, Vernard, from Wagoner, Okla., to Box 201, Arnett, Okla.

Updegraff, Charles L., Jr., from Des Moines, Iowa, to Osteopathic Hospital of Kansas City, 926 E. 11th St., Kansas City 6E, Mo.



Vaughan, Robert Guy, CCO '52; 708 Beach Ave., Rochester 12, N. Y.
Via, James H., KC '52; 5316 Cleveland Ave., Kansas City 4, Mo.
Vila, Anthony William, KC '52; Houston Osteopathic Hospital, 5115 Montrose Blvd., Houston 6, Texas
Wakefield, Olis M., KCOS '52; 507 Bankers Trust Bldg., Norfolk 10, Va.
Walmer, Harold C., PCO '52; 541 E. Orange St., Lancaster, Pa.
Ware, Howard R., KCOS '52; 744 Main Ave., S., Twin Falls, Idaho
Weber, Martin, PCO '52; Metropolitan Hospital, 241 N. 18th St., Philadelphia 3, Pa.
Wechsler, Arnold, PCO '52; Osteopathic Hospital of Philadelphia, 48th & Spruce Sts., Philadelphia 39, Pa.
Welch, Virginia, from Macomb, Ill., to Star Route 58, Waialua, Oahu, T. H.
Wellman, W. J., from Montgomery, W. Va., to Loving, N. Mex.
Winegardner, R. S., from Elsa, Texas, to 2715 Jensen Drive, Houston 10, Texas
Wirt, Winton W., KC '52; Route 2, Dade City, Fla.
Wolfe, Richard B., from Mulberry, Ind., to 1404 Lincolnway, E., Mishawaka, Ind.
Wooster, William E., CCO '52; 201 W. Highland Ave., Highland Park 3, Mich.
Worlock, Harry R., from Elizabeth, Tenn., to Ram Bldg., Room 12, Aiken, S. C.
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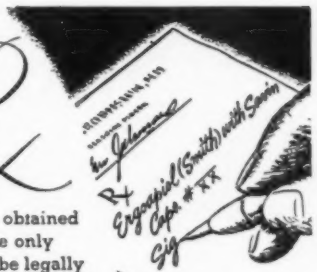

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LUMBAR DISC LESIONS. Pathogenesis and Treatment of Low Back Pain and Sciatica. By J. R. Armstrong, M.D., M.Ch., F.R.C.S., Orthopaedic Surgeon to the Metropolitan Hospital; Orthopaedic Surgeon to Lambeth Hospital; Visiting Orthopaedic Surgeon to Manor House Hospital (Industrial Orthopaedic Society); Honorary Consulting Orthopaedic Surgeon to Royal Waterloo Hospital for Children and Women; Late Visiting Orthopaedic Surgeon to the Ministry of Pensions Hospital, Stoke Mandeville; Late Orthopaedic Specialist, Royal Air Force Medical Service. Foreword by H. Osmond-Clarke, C.B.E., F.R.C.S. Cloth. Pp. 228, with illustrations. Price $8.00. E. & S. Livingstone, LTD., Edinburgh and London, 1952.

THE HISTORY OF AMERICAN EPIDEMIOLOGY. By C. E. A. Winslow, Dr. P. H., Professor Emeritus, Yale University School of Medicine; Editor, American Journal of Public Health; Wilson G. Smillie, M.D., Professor and Chairman, Department of Public Health and Preventive Medicine, Cornell University Medical College; James A. Doull, M.D., Medical Director, Leonard Wood Memorial (American Leprosy Foundation); John E. Gordon, M.D., Professor and Chairman, Department of Epidemiology, School of Public Health, Harvard University. Edited by Franklin H. Top, M.D., Professor of Epidemiology and Pediatrics, College of Medical Sciences, University of Minnesota. Cloth. Pp. 190. Price $4.75. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1952.

MAN AND EPIDEMICS. By C. E. A. Winslow. Cloth. Pp. 246. Price $4.00. Princeton University Press, Princeton, N. J., 1952.

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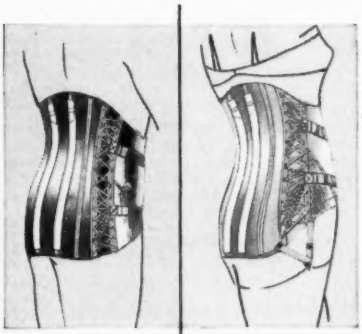

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POST-GRADUATE LECTURES ON ORTHOPEDIC DIAGNOSIS AND INDICATIONS. By Arthur Steindler, M.D., F.A.C.S., Professor of Orthopedic Surgery, State University of Iowa, Iowa City, Iowa. Vol. 4. Cloth. Pp. 312, with illustrations. Price $9.75. Charles C Thomas, Publisher, 301-327 East Lawrence Ave., Springfield, Ill., 1952.

CORNELL CONFERENCES ON THERAPY. By Harry Gold, M.D., Managing Editor; David P. Barr, M.D.; Frank C. Ferguson, Jr., M.D.; McKeen Cattell, M.D.; Frank Glenn, M.D.; and George Reader, M.D. Vol. 5. Cloth. Pp. 295. Price $4.00. The Macmillan Company, 60 Fifth Ave., New York 11, 1952.

PRACTICAL DERMATOLOGY. For Medical Students and General Practitioners. By George M. Lewis, M.D., F.A.C.P., Professor of Clinical Medicine (Dermatology), Cornell University Medical College; Attending Dermatologist, The New York Hospital; Secretary, the American Board of Dermatology and Syphilology. Cloth. Pp. 328, with illustrations. Price $7.50. W. B. Saunders Company, West Washington Sq., Philadelphia, 1952.

PERSONALITY IN THE MAKING. The Fact-Finding Report of The Midcentury White House Conference on Children and Youth. By Helen Leland Witmer and Ruth Kotinsky. Ed. 1. Cloth. Pp. 454. Price $4.50. Harper & Brothers, Publishers, 49 E. 33rd St., New York, 1952.

PRACTICAL ESSAYS ON MEDICAL EDUCATION AND THE MEDICAL PROFESSION IN THE UNITED STATES. By Daniel Drake, M.D., 1832. Introduction by David A. Tucker, Jr. Vol. 5. Cloth. Pp. 104. Price $2.50. The Johns Hopkins Press, Baltimore 18, 1952.

ACUTE PERIPHERAL ARTERIAL OCCLUSION. By William D. Holden, M.D.; Oliver H. Payne Professor of Surgery, Western Reserve University, School of Medicine; Director of Surgery, University Hospitals of Cleveland, Cleveland, Ohio. Cloth. Pp. 66. Price $2.35. Charles C Thomas, Publisher, 301-327 East Lawrence Ave., Springfield, Ill., 1952.

RADIOLOGIC DIAGNOSIS OF THE LOWER URINARY TRACT. By Donald E. Beard, M.D., Assistant in Urology, Emory University School of Medicine Visiting Urologist, Grady Memorial Hospital, Atlanta, Georgia; William E. Goodyear, M.D., Assistant in Urology, Emory University School of Medicine Visiting Urologist, Grady Memorial Hospital, Atlanta, Georgia; and H. Stephen Weens, M.D., Professor and Chairman, Department of Radiology, Emory University School of Medicine; Radiologist, Grady Memorial Hospital and Emory University Hospital, Atlanta, Georgia. Cloth. Pp. 143, with illustrations. Price $6.50. Charles C Thomas, Publisher, 301-327 East Lawrence Ave., Springfield, Ill., 1952.

SYNOPSIS OF PATHOLOGY. By W. A. D. Anderson, M.A., M.D., F.A.C.P., Professor of Pathology, Marquette University School of Medicine; Pathologist, St. Joseph's Hospital, Milwaukee, Wisconsin. Ed. 3. Cloth. Pp. 787, with illustrations. Price $8.00. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1952.

THE FOOT. By Norman C. Lake, M.D., M.S., D.Sc. (Lond.), F.R.C.S. (Eng.); Senior Surgeon and Director of Surgical Division, Charing Cross Hospital; Emeritus Consulting Surgeon, Bolingbroke Hospital; Director of Studies, London Foot Hospital; Member of The Court of Examiners of The Royal College of Surgeons; Late Senior Examiner in Surgery, University of London; and External Examiner in Surgery, Victoria University, Manchester. Ed. 4. Cloth. Pp. 466, with illustrations. Price $5.50. Bailliere, Tindall and Cox, 7 and 8, Henrietta St., W.C.2, London, 1952.

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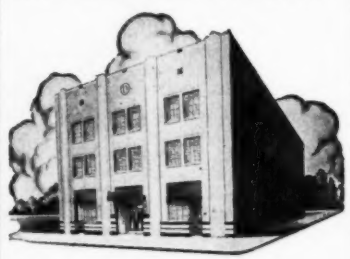

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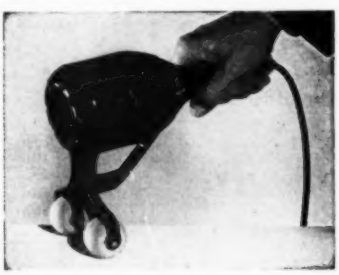

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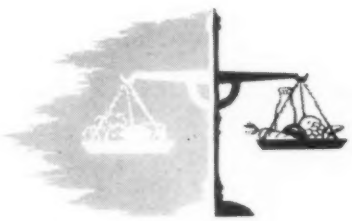

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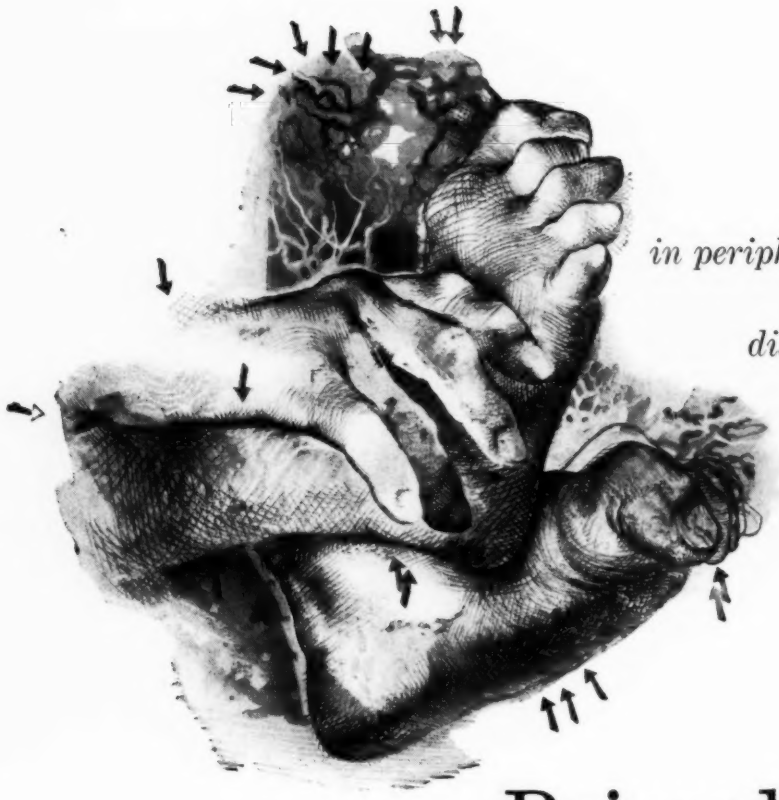

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